akademisk
academic quarter
akkvarter
tidsskrift for humanistisk forskning
Aalborg Universitet
Volume 15 10 • 2017

NETWORK

Akademisk kvarter
Tidsskrift for humanistisk forskning

Academic Quarter
Journal for humanistic research

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ISSN 1904-0008

Yderligere information / Further information:
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akademisk kvarter
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Volume 15. 2017 • on the web

Content

akademisk kvarter
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Volume 15. Autum 2017 • on the web

Introduction

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In 1978, the American anthropologist Alvin W. Wolfe wrote an article with the title *The Rise of Network Thinking in Anthropology*. In his paper, he discuss a recent, but prominent theoretical trend, namely the use of the concept and model of network in explaining social and cultural phenomena. Wolfe argues than in less than 25 years the model of network has established itself in anthropology as an approach permitting more advanced studies of social networks that enables anthropology to engage in an ever-expanding list of complex social problems. So, why this rise in the use and application of network thinking, he asks. In an attempt to answer his own question about the increase and usefulness of a theoretical network approach, Wolfe points to three distinct qualities that such an approach carries as he defines network as a set of links, as generated structures and as flow processes. These qualities and thus the background for the rise of network thinking are, according to Wolfe, identifiable in at least four areas: in social theory, in

ethnographic experience, in mathematics and in the technology of electronic data processing (Wolfe 1978, p 56).

Wolfe identifies four mutually reinforcing trends in the current social theory, which taken together lead toward a network approach. As he describes: "(1) There is a trend toward interest in *relations rather than things*. (2) There is a trend toward interest in *process rather than form*. (3) There is a trend toward seeking out *elementary phenomena rather than institutions*. (4) There is a trend toward constructing *generative models rather than functional ones* (Wolfe 1978, p. 56)". The field experience of the anthropologist is the second area where Wolfe see another grounding for the network thinking. The hallmark of ethnography, the direct, first-hand observation is highly dependent on getting access to the communities, people and places that the anthropologist wish to study. An access, which requires getting in contact, building relations and creating links with the people and places. This ethnographic experience gives the network approach an almost intuitively entry in anthropology. Finally, Wolfe points to how the influence of mathematics and the expanding use of computers play an immense role in establishing network thinking as a key feature of modern anthropology. With computers, he foresee a bright future where anthropologists will be able to processes huge amount of data in collaboration with mathematicians and create formal models of complex social networks.

Since Wolfe, network theories and methodologies focusing on agency, interactions and relations have become even more influential and widespread in the social sciences and humanities. In the 1990's two important additions or corrections to the network concept appeared. In 1996, the Spanish/American sociologist Manuel Castell described how global economy, production and consumption are created through networks that cannot be isolated geographically, but that envelop and shape the entire world. He coined the term of the 'Network Society' as a concept for a society no longer bounded and shaped by geography, but which emerges and exists by way of social, economic and information streams linking industry, organizations and people in large global networks. Another addition came with the theoretical fields of Science and Technology Studies (STS) and Actor-Network Theory (ANT) as formulated by, among others, the French philosopher of science Bruno Latour (see

for instance Latour 1988, 1993 and 1996). A principal idea in ANT is that an entity is not significant in and by itself, but attains meaning and produces effect through its relations to numerous other entities (Blok and Elgaard Jensen 2001). The term actor-network thus describes this constant and changing establishing of relations that helps stabilize or destabilize a given phenomenon. Furthermore, a key feature of this understanding of network is their hybrid heterogeneous constitution as they consist of relations between humans and material objects.

In sum, the network perspective seem to have become the go-to analytical approach within the social sciences and the humanities that emphasizes relation-making processes, descriptions of how phenomena come into being and discussions of the effects and implications of the phenomena. So, some 40 years later, we found ourselves asking a related question to the one Wolfe asked in 1978 – not a question of a rise in network thinking, but a question of the continued significance of a network approach, both on a theoretical and empirical level to researchers of human culture and society. Acknowledging that the network approach has consolidated itself as an almost axiomatic way of thinking about social and cultural occurrences, with this issue, we wanted to engage in a discussion of the appropriateness and relevance of the network approach, and to ask; what do we (still) gain by applying a network perspective?

The call for paper that we sent out for this issue was deliberately very open, as we wanted to invite articles dealing with a broad - both thematic and methodological - approach to the network concept, including those taking a critical stance. The response to the call, represented by the articles in this issue, clearly reflects and confirms that the concept of network is still very much on the research agenda. Though never as a taken for granted concept, but as a vivid and stimulating approach for dealing with a diverse set of problems and discussions such as the intricate relation between social media and public debate and between social media and visual practices of memory, as well as discussions of networks of surveillance and networks as socio-technical infrastructures.

In the article *Unscrewing social media networks, twice* Andreas Birkbak investigate an often made claim that social media is an important new force in politics where the public voice can be heard. Through an analysis of seven Facebook pages mobilizing citizens

either for or against in the heated debate on road pricing in Copenhagen in 2011-2012 Birkbak discuss the way social media comes with a predefined understanding as facilitating democratic processes where many actors are united into some kind of unified larger force or public voice. In a critical engagement with the network understanding in ANT, Birkbak argues that the classic ANT notion of network is so vague that it too easily can be combined with liberal notions producing exactly this image of social media, where one facebook page, is seen as a proxy for a singular public spheres despite profound differences among the participants.

In their article, *Reassembling surveillance creep* Ask Risom Bøge and Peter Lauritsen analyses the way surveillance technologies are constantly introduced, transformed, and spread to new practices for new purposes - in other words how surveillance creep. In their article, they thus address a fundamental dynamic whereby our current surveillance societies are created and maintained. This is done through a historical study of the Danish DNA database. The database has evolved from a small-scale database introduced in year 2000 with a very restricted purpose to a large-scale DNA collection with profiles from more than 110.000 citizens, integrated in all types of police investigations and which is accessible not only to the Danish police force but to all EU police forces. Using the concept of chains of translation from ANT the article seeks to understand the nature and impact of surveillance creep on the various actors involved in or affected by the database. This involves an understanding of the processes of translating interests and forming adequate alignments between heterogeneous actors such as laws, technologies, the watchers and the watched.

In her article *Visualising Historical Networks: Family Trees and Wikipedia* Henriette Roud Cunliffe explore different methods for visualising and understanding a historical family network using the Drachmann family of 19th century Copenhagen as a case. The first method is a more traditional way of visualising family networks with a hierarchical family tree and an encoded data structure using the file format GEDCOM. The second method looks at the same family in Wikipedia first through hyperlinks and secondly as linked data in Wikidata. The article thus discusses the similarities and differences between these network representations of the same family, employing a theoretically informed network perspective from ANT

and feminism. Using a network approach is, according to Roud Cunliffe, very useful to the identification of and engagement with persons and connections that otherwise disappear in the visual representations, thereby making it possible to create a more holistic and equalizing understanding of historical relations.

This way of using the network approach as a way to improve and develop methods is also a key point in the next article *The Photograph as Network. Tracing – Disentangling – Relating: ANT as a Methodology in Visual Culture Studies* by Frauke Wiegand. In the article, Wiegand discusses the usability of the concepts entanglement, relationality, and traceability as analytical tools for studying visual materials and visual practices as well as the dynamic visual work of cultural memory. Reading the net-work of two tourist snapshots taken in Regina Mundi Church in Soweto, South Africa, Wiegand shows how the photographs are much more than just a snapshot of a situation or a material visual representation. According to Wiegand the photos holds all the acts and technologies that created it which makes it possible to trace and engage with other, more hidden, stories also entailed in the photographs. By way of the three concepts she makes visible how approaching snapshots from a network perspective opens for an understanding of photographs not only as cultural objects, but also as continuous mediators of memory.

The emphasis on the workings of networks is also very prominent in Marie Anna Svendsen and Astrid P Jespersen's article. In *"Here comes my son!" On the underlying invisible work and infrastructure of a telepresence robot in a Danish nursing home,* focus is on the many unseen elements at play in the establishment of an infrastructure to support the implementation of a technological solution in old age care. The main argument of the article is that implementation of new technology is dependent on large amounts of work on the part of both of human and technical actors. Much of this work is normally invisible to and often lack acknowledgment, and the article argues that a focus on infrastructure proves crucial in the understanding the importance of this invisible work taking place in implementation processes.

In the next article *Reconnection work: A network approach to households' dealing with ICT breakdowns* Nina Heidenstrøm and Ardis Storm-Mathisen investigates the effect of an ICT infrastructure

breakdown on the concerns of households viewed as socio-material networks. The purpose is to use the ICT breakdown in Lærdal, Norway in 2014 as a lens to show how crises open up the black box of these household networks that normally functions as a whole. Throughout the analysis, Heidenstrøm and Storm-Mathisen describe how the networks reconnect and are stabilised at a household level through strategies where people mobilise actants such as cars and intact pieces of ICT to establish new temporal associations of actor-networks. The article thus highlight the need to pay attention to the workings and changes in the interplay between material and human actors in the management of crises and disasters.

Mikkel Jensen chooses a very different take on the concept of network in is his article Social Reproduction and Political Change in The Wire. In the article, he performs a systemic analysis of how society is portrayed and framed in the acclaimed TV-series The Wire. The network approach is hereby highlighting the interconnectivity of the social system as a complex web of relations. Jensen points to how the shows insistence on social reproduction at an institutional and structural level create a coherent and consistent political argument, and must be interpreted as a call for political and paradigmatic change. By making this claim, Jensen contributes to, the ongoing scholarly debate about the political potential of The Wire and more broadly to the debate about political elements and potential in TV series. The article thereby contributes with insights into the current societal role of mass communication and fiction and how fictional worlds interplays with interpretations and conceptualizations of "real world" societies.

The interplay between humans and things external to the human mind such as material objects or communication technologies is at the heart of the article *Networks as a case of distributed cognition,* written by Bo Allesøe. In the article, Allesøe analyses networks as involving distributed social cognition. He employs an extended mind approach that allows him to focus on the contribution to cognitive processes by structures and things external to the mind. Through a presentation of the extended mind hypothesis and the illustrative use of a crime scene investigation he shows how participating in a network is committing to something macrocognitive, involving a normative relation between a communality both presupposed and projected. Allesøe thereby shows how the network approach has

the potential to enrich perceptions of cognition to something that inevitably goes beyond the mind of the individual.

The final article in the issue *Networks of expertise: an example from process consulting* by Casper Elmholdt and Klaus Elmholdt deals with the configuration and enactment of expertise in consultancy work in public sector organizations. Through an empirical example from a process consultancy assignment in a hospital, they discern four modes of practice by which a network of expertise comes to work. In doing so, the article contributes to recent discussions of the role and enactment of expertise and skilled performance in organizational settings and contemporary work. Moreover, the article contributes to practice-based studies of expertise and a sociology of expertise by showing how expertise is assembled and enacted in action.

In the light of our ambition with initiating a renewed discussion of network, it is thus interesting to see with this fantastic palette of articles how much of what Wolfe described and predicted 40 years ago that still influences the thinking in social sciences and humanities. However, what is also striking is that the approaches and discussions in this sample of articles never appears dated. The articles are all very much concerned with phenomena and debates, which are high on the societal agenda, contributing both empirically, methodologically and theoretically.

We hope that you will enjoy reading them.

References

Blok, Anders & Elgaard Jensen, Torben (2011): *Bruno Latour: Hybrid thoughts in a hybrid world*. London and New York: Routledge

Castells, Manuel (1996): *The Rise of the Network Society*. Cambridge, MA: Blackwell

Latour, Bruno (1988): *The Pasteurization of France*. Cambridge, MA: Harvard University Press

Latour, Bruno (1993): *We Have Never Been Modern*. New York: Harvester Wheatsheaf

Latour, Bruno (1996): On actor-network theory: a few clarifications. *Soziale Welt*, 47(4), p. 369-81

Wolfe, Alvin W. (1978) : The Rise of Network Thinking in Anthropology. *Social Networks*, 1, p. 53-64

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Volume 15. Autum 2017 • on the web

Unscrewing social media networks, twice

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Abstract

Social media are often claimed to be an important new force in politics. One way to investigate such a claim is to follow an early call made in actor-network theory (ANT) to "unscrew" those entities that are assumed to be important and show how they are made up of heterogeneous networks of many different actors (Callon and Latour 1981). In this article I take steps towards unscrewing seven Facebook pages that were used to mobilize citizens for and against road pricing in Copenhagen in 2011-2012. But I encounter the difficulty that social media are already explicitly understood in Internet Studies and beyond as facilitating processes where many actors are united despite their differences into some kind of larger force, as expressed in concepts such as the "networked public sphere" (boyd 2010; Ito 2008). This challenges the usefulness of ANT, I argue, because the notion of network is so vague that it can be combined with liberal notions of a singular public sphere (Somers 1995b; 1995a). In order to unscrew social media as a political force, I suggest that we need to work through both the assembling of social media networks *and* attend to corresponding reconstructions of liberal political narratives. As such, I argue for the need to unscrew

social media twice, and I take this as an occasion to deal with some of the limitations of ANT when it comes to digital media.

Keywords networks, ANT, social media, public pressure, Facebook

Introduction

> The political centers of power are moving away from the parliaments and out to social media. It is especially so in crises, where the digital reality poses en- tirely new challenges to political leadership. (*Mandag Morgen* 2015:1)[1]

Social networking sites, or social media, are today positioned as an important new force in politics.

The quote above, which stems from a prominent political analysis magazine in Denmark, illustrates how this interest is marked by hopes that social media offer new avenues for public participation in politics. Such claims about the redistribution of political power with web technologies have moved out of the academic literature (e.g. Castells 2009) and become commonplace in the press in recent years. At the same time, these hopes are accompanied by a number of corresponding critiques, which highlight various shortcomings of social media participation. The impact of social media has for some time now been understood to be strongest in crises or in relation to single issue politics (Bennett and Segerberg 2012), and social media are claimed to facilitate the development of so-called "echo chambers," where people group together with people they agree with and only receive information that confirms their existing views on an issue (Sunstein 2006; Pariser 2012).

What is noteworthy about the hype about social media participation, whether optimistic or pessimistic, is that it is to a significant extent modeled on previous understandings of the role of media in democratic societies. When social media are described as giving rise to a "networked public sphere" (boyd 2010; Ito 2008) and the identification of echo chambers becomes one of the main way of assessing the health of this sphere, a parallel is drawn between social media and the critical role that the free press was once supposed to play in democratic societies. This idea is also expressed in

the notion of the Internet, and not least social media, as the "fifth estate" of modern democracies (Dutton 2009).

Similarly to the 'offline' press that went before, scholars in Internet Studies associate social media with an ability to generate public pressure. The notion of a digital "reality" used in the opening quote is suggestive. Following this line of thinking, one reason why social media should be taken as a force to be reckoned with is that it is not always possible to impose a certain version of reality on social media platforms. On the contrary, social media seem to facilitate the organization of large groups of people who understand things differently from those in power. Once this happens, it does not matter so much who is right and who is wrong, because social media assemblies are themselves a "digital reality" that cannot be ignored.

A case of such social media driven public pressure appeared in Denmark in 2011 and 2012, when protests broke out against plans to introduce congestion charges in Copenhagen by constructing what came to be known as a 'payment ring' around the city center. Some of these protests appeared on social media, which became the occasion for claims such as the following in the Danish news media:

> The payment ring (…) [belongs to a set] of issues, where the political agenda seem to have been strongly influenced by opposition from groups in the population that have started their protests on social media, and where the protests have been picked up by the large media companies in the country – and in the end by the politicians, who have turned on a dime after media storms lasting days or weeks. (Rekling 2014)

The payment ring controversy offers a specific instantiation, then, of the new force in politics that social media are claimed to be. The question I wish to raise in this paper is how this force can be scrutinized.

The ANT craft of unscrewing

One way to probe the idea that social media are a new political force is to follow an early call made in actor-network theory to unscrew those entities that are assumed to be "large" or "macro" actors (Callon and Latour 1981). Callon's and Latour's argument takes off

from Thomas Hobbes's social contract theory (Hobbes 1996), which they see as the first formulation of a relationship between micro and macro actors, where all differences in size are the results of transactions (Callon and Latour 1981). While there are thus no *a priori* larger or smaller social actors in Hobbes's political philosophy, humans unite through a social contract to create a sovereign, making each individual appear as a micro actor and the sovereign as a macro actor. As Callon and Latour formulate it: "The sovereign is not *above* the people, either by nature or by function, nor is he higher, or greater, or of different substance. He is the people itself in another state – as we speak of a gaseous or a solid state" (Callon and Latour 1981:278, italics in the original).

Callon and Latour do not believe that Hobbes's social contract theory is a good description of reality. But they see his formulation of the relationship between micro and macro in society as valuable because it speaks to the notion of translation. This is a key concept in ANT, which captures the work and sometimes violence it takes to transform several actors into a single will (Callon 1986). Contrary to Hobbes's thinking, this is not a primordial ceremony of society that happens once and for all, but something that happens all the time and in several ways at once.

The methodology that Callon and Latour propose for doing a sociology of translation is to think of actors as networks. There is an important difference here between the radical position of thinking of actors *as* networks and the more superficial understanding of actors *in* networks. Thinking of actors *as* networks is to take the consequence of the role of translation in social life: to insist that differences in size (or better, perhaps, "reach") of actors as the result of "net-work," in the sense of translation work (Latour 2005).

Unscrewing social media

Thinking of social media as networks, however, does not necessarily require actor-network theory. Social media already operate explicitly in terms of networks. The content you are served on a social media site, such as Facebook or Instagram, is based on the network of friends and acquaintances that you have registered connections with on that site. More specifically, the importance of something is already defined in terms of aggregates of micro actors. A Twitter tweet is arguably only as "large" as the number of actors who

choose to retweet it and thus make the tweet appear among their own tweets. The number of retweets is emphasized by the Twitter interface, and its significance is ensured by the algorithms that select tweets for extra exposure based on retweet popularity. Facebook posts and Facebook pages grow in size in the same way by associating itself with more people (Gerlitz and Helmond 2013).

So while Callon and Latour propose that we pay special attention to how micro actors are translated into macro actors, social media already foreground translations of this sort. The space for a 'network argument' thus seems to be pre-occupied when it comes to these media. However, once these processes are scrutinized in a bit more detail, it becomes evident that while social media already foreground networks, their political significance tends not to be understood in network terms – at least not in the way networks are thought to work in ANT.

In the following, I try to demonstrate this by unscrewing a set of Facebook pages related to the abovementioned controversy over congestion charges in Copenhagen. I go into some detail about how such pages combine individual actors into a larger force. At the same time I observe how the networked character of these operations gets lost in popular interpretation. My argument is that even though a social media platform such as Facebook seems to lend itself easily to 'unscrewing' of larger political forces into individual actors, social media participation continue to be understood in relation to a public that remains firmly 'screwed' together.

An alternative strategy for problematizing the use of the network concept in relation to social media would be to point out that there is a substantial distance from the notion of *social* networks to the ANT analysis of *heterogeneous* networks (Venturini, Munk, and Jacomy forthcoming; Marres 2006). This is an important point, but it comes with a risk of reverting to an analysis that instead privileges materiality (Parks and Starosielski 2015). In this paper I focus on a different challenge, proposing that in order to gain analytical purchase from the explicitly networked affordances of social media, we need to unscrew social media *twice* – both in terms of tracing their networked nature and in terms of opening the liberal understandings of their political significance for scrutiny.

Quantitative analysis and the petition critique

While the payment ring issue generated a variety of activity on social media, I limit my analysis here to 7 Facebook pages that were all open to public viewing, and which all attracted a meaningful amount of contributions from Facebook users. Five of the pages were positioned against the payment ring project, while two were pro-payment ring pages. Here is an overview of the Facebook pages including their numbers of supporters, or 'likes', from September 2013:

Page name	Supporters
Contra payment ring pages	
"15 good reasons to oppose the payment ring"	2231
"Motorists against the payment ring"	1254
"No thanks to the payment ring"	638
"No to the payment ring"	2452
"I believe all motorists should be able to drive in and out of Copenhagen for free"	1496
Pro payment ring pages	
"Congestion ring now"	241
"I am for a payment ring"	1624
TOTAL	9936

Table 1: Seven payment ring-related Facebook pages and numbers of supporters

Counting support is a way of analyzing such pages that I share with Facebook. The number of likes that a page has received is automatically summarized and shown. For some analysts, these numbers raise the question of whether they are large or small. When a journalist found some of these Facebook pages in relation to the payment ring controversy, he argued they were not very impressive given how more than half of all Danes have a Facebook account, and that there are other protest pages that have managed to attract supporters in the tens of thousands (Meilstrup 2012).

The Facebook pages are here understood as a sort of online petitions. The result is that the number of likes a given page has is compared to a hypothetical number of potential likes that is deter-

mined by the size of the Danish population. If the numbers are found to be small in comparison, they are argued not to be representative of the Danish public (ibid.). What gets lost in such an analysis, however, is how a Facebook page is more than a like count. It is also a stream of activity where administrators and other users post content. Indeed, this is what makes it into a 'page'. The following table includes a new set of numbers that count activities such as posting and commenting.

Page	Supporters	Posts total	Comments	All acts of engagement[2]
"15 good reasons…"	2231	163	306	2116
"Motorists against the…"	1254	186	269	1288
"No thanks to payment…"	638	212	216	1540
"No to the payment ring…"	2452	470	1069	6604
"I think all motorists…"	1496	373	985	4531
"Congestion charges now"	241	66	22	333
"I am for a payment ring"	1624	111	95	685
TOTAL	9936	1581	2962	17097

Table 2: Activity counts on the seven Facebook pages

Contrary to the number of likes, these other counts were not offered by Facebook's user interface, but had to be found through accessing the Facebook API with the research app Netvizz (Rieder 2013). The table shows that there are a total of almost 3000 comments on the seven pages. Contrary to the number of likes/supporters, the number of comments does not lend itself to be measured against the size of the population in Denmark. While each individual Facebook user can only press 'like' once, he or she can choose to submit many comments – or none. Indeed, the distribution of comments proves to be quite uneven across users. For example, the page on the top of the list, called "15 good reasons to oppose the payment ring," gathered 2231 users. Out of these, the Netvizz data shows that only 169, or less than 10%, made comments. Of the 169, 45 made more than one comment, and only two users made more than seven comments. These two users were very active, however – both made more than 20 comments. In total, the comments of these two users constitute 16% of the total number of 306 comments on that page.

This observation suggests that while the pages lend themselves to be understood and critiqued as petitions, at the same time they are different from petitions. More specifically, they are produced by networks of users that interact and play strongly differing roles in these interactions. Some users are very active with comments and posts, while many users are passive aside from having liked the page in the first instance. Understanding the pages as networks of more or less active users allows for a more nuanced understanding of how public pressure is constructed with Facebook, but the understanding of the Facebook pages as online petitions does not have room for such distinctions, although they are well-known dynamics on the web (Shirky 2008).

Network analysis and the echo chamber critique

Facebook facilitates the ongoing development of complex interactions that can be understood in network terms. This is foregrounded by Facebook in various ways, such as when a personal profile page consists of links to various other actors and settings that together make up a description of a particular person. Latour has remarked that this technique facilitates a sort of ANT analysis by explicitly presenting an actor as a sum of relations (Latour et al. 2012). In relation to the protest pages examined here, it was just observed that these pages are made up of not only a number of supporters, but also of comments and posts that are unevenly distributed across these supporters. As such, each page can be understood as the sum of relations to a number of Facebook users, who are heterogeneous in the sense that they each have their individual patterns of activity. For instance, one supporter may be posting comments on several anti-payment ring pages, while another may never have posted a single comment.

With the aid of Netvizz, it is possible to access a graph of how the 7 Facebook pages are connected by user activity. The below graph visualization shows interactions between individual users and individual posts on the 7 pages:

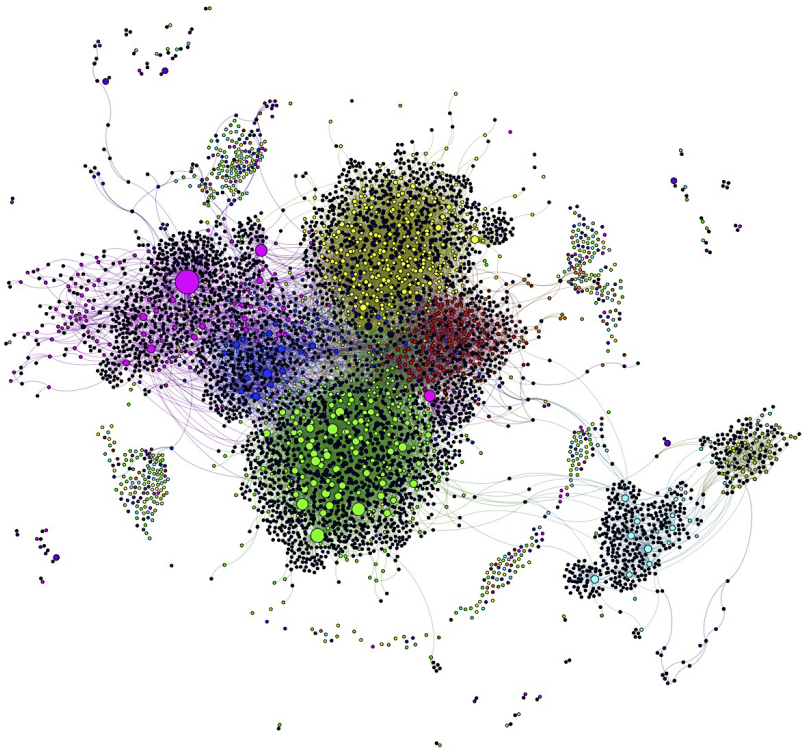

Figure 1: A Gephi visualization of user-post interaction on the seven Facebook pages

The posts are colored according to what page they belong to. All the black nodes are users. Each time a user has engaged with a specific post, a tie is created between the user and the post, pulling the two nodes closer together in the visualization (Jacomy et al. 2014). The network consists of two components. In the center, there is the main component, which consists of five Facebook pages. Their closeness can be interpreted in relation to the smaller component in the lower right corner. Here are the two last pages, which cluster quite nicely around themselves, but also, to some extent, with one another. The distance between the two components proves to be analytically meaningful, because the five pages in the main cluster are all opposed to the payment ring project, while the two pages to the right are both supportive of the project.

One way to interpret the network of user-post interaction, then, is that the controversy appears clearly polarized. Such a conclusion would underpin to the abovementioned critique of social media participation concerned with the formation of echo chambers, where users are shielded from those they do not agree with (Pariser 2012, Sunstein 2006). An echo chamber critique could highlight that there are only about ten ties between the two clusters in the network, meaning that only about ten users out of ten thousand have been active across the pro and con divide.

However, the notion of echo chambers assumes that there is an open space of public deliberation that the echo chambers are shutting users out of. But the quantitative analysis indicated that the Facebook pages are not sites of equal deliberation in any straightforward way. Most users are completely passive when it comes to taking part in the more "deliberative" aspects of posting and commenting. A few users get to dominate the space by posting and commenting much more than others. Instead of arguing that there should have been an open dialogue, it seems more relevant to ask questions about who these users are and why some are more active than others. Such an approach could use the network visualization to identify actors that contribute in various ways to constructing public pressure with Facebook.

Unscrewing Facebook in two ways

So far, I have shown how Facebook pages used in relation to a public controversy can be unscrewed in different ways. The purpose has not been to perform a fully-fledged quantitative or network analysis of the pages, but to demonstrate the need to unscrew the Facebook pages in two senses of the word.

The first sense of unscrewing is the classic ANT sense (Callon and Latour 1981). In this perspective, one should deploy whatever method is needed in order to unpack the 'net-work' that happens each time a social media assembly comes across as a powerful political force. For example, I have shown that there are many Facebook users involved, some of which are much more active than others. This suggests that what was taken by some observers as a poll of the Danish population, given the widespread use of Facebook in Denmark, is also the work of a few industrious activists. We have also seen how Facebook users can support several Facebook pages,

making each of them look larger than they are if treated as petitions in the mode of "one vote per head." These observations help explain how social media can come to be seen as a macro actor in contemporary democratic politics.

In observing these dynamics, I have suggested that they come with connections to ideas and concepts found elsewhere, such as petitions and public debate. Facebook's political importance is understood with the help of quite conventional understandings of public participation in politics. To recapitulate, social media was accounted for and critiqued as a sort of online petition with an insufficient number of participants, and as a trap that leads users into echo chambers and robs them of the capacity of rational deliberation they are assumed to have.

These critiques are flipsides of the hopes noted in the introduction that social media have the capacity to unite people into a new political force. An important part of this hope is that social media have network affordances that allow people to organize in ways that are alternative to existing political institutions. From an ANT understanding where no actors are *a priori* micro or macro, social media are interesting because they explicate how individuals shift dynamically in and out of assemblies such as Facebook pages that can then constitute public pressure to some extent. What decides the extent of such pressure is the difference it makes in practice. For instance, the anti-payment ring Facebook pages may have contributed to solidifying the view that a payment ring is undesirable in Copenhagen by carefully mobilizing particular observations and people.

However, when such social media dynamics are analyzed with concepts like petitions and public debate, the question shifts into an all-or-nothing question of whether social media assemblies constitute the free voice of the people or not. Margaret Somers (1995a, 1995b) has shown that while the notion of a public sphere tries to mediate between the classic liberal domains of the public and the private, it remains grounded in the private, or the social, as a voice against public authorities and the state. The result is that the dichotomy at the bottom of liberal political philosophy is reproduced, and the public sphere remains singular in its opposition to the state, as with the similar notion of civil society. A particular set of problems follow, which have to do with the legitimacy of such a social counter force to established authorities. In the Copenhagen case

such questions took center stage when the Facebook pages were understood as either an on-going polling of the Danish population or the tracing of vested interests locked into echo chambers.

Part of what is at stake here is what the word "social" in "social media" comes to mean. When the political significance of social media is interpreted with concepts such as public sphere and civil society, the world is cleaned up into distinct domains of authorities on one side and a social counter-force on the other. The result is that the networked character of social media only plays a role in so far as it can legitimize a civic political force by affording openness. Following an ANT understanding of "social", however, what is at stake is not a distinct social domain, but the construction of associations (Latour 2005). Here is a way to approach social media that focuses on how particular groups and issues emerge and are qualified through specific dynamics of liking, commenting and posting that I have discussed above.

What is also at stake is how to make analytical use of the status of social media as social 'networking' sites. The current hopes and fears for social media as a political force suggests that the network dynamics here easily come to be understood in pre-existing registers of liberal political philosophy. Perhaps this is an added risk when dealing with media, since studies of media have often been cast in terms of liberal understandings of political participation as something that takes place in the public sphere (Carpentier 2011; Dahlgren 2013). The problem for ANT here is that the construction work that ANT can usefully foreground is taken as suspect when it seems to reveal how social media participation only mimics the 'real' civil society or public sphere.

In order for the ANT understanding of networks to be useful in an era of social media, the ANT method must be equipped to not just trace translations of agencies, but also deal with the presence of what could be called counter-methods that are already operative in the understanding of social media assemblies. When a Facebook page is understood as a petition by journalists or the designers of Facebook's user interface, these understandings are performative of how Facebook gets used for political participation. At the same time, Facebook has networked dynamics beyond the counting of likes that can be traced and analyzed. In order understand social

media as a political force, both things must be unscrewed and examined carefully.

Conclusion

The following challenge has been identified for ANT-inspired analyses of social media as a political force: The ways in which such media are already explicitly networked in their operations can stand in the way of understanding them with an approach that sees the world in terms of networks. I showed this for the case of seven Facebook pages that were created to put pressure on the introduction of road pricing in Denmark. Inspired by the classic ANT call to unscrew political macro actors, I showed how Facebook was used to translate many users into a 'social media actor'. At the same time, however, I noticed that this was critiqued not as a hard-won achievement, but as an insufficient representation of the civil society in Denmark, or as a deficient version of public debate. Part of the explanation, I proposed, is that the explicitly networked character of social media such as Facebook is attractive not just to ANT perspectives but also to liberal ideals about a freely-organizing civic counterforce to the state. Here, the analysis of the political significance of social media is modeled on previous analyses of the role of the media as a 'fourth estate' in liberal democracies. I suggest that this cannot be ignored by ANT analysts since highlighting the net-work done with social media can easily come to be co-opted by liberal narratives that clean up the world in public or private. As such, ANT needs to be able to unscrew both the translation of many into one with social media *and* the political philosophies that are currently shaping social media participation.

References

Bennett, W. Lance, and Alexandra Segerberg. 2012. "The Logic of Connective Action." *Information, Communication & Society* 15 (5): 739–68.

boyd, danah m. 2010. "Social Network Sites as Networked Publics: Affordances, Dynamics, and Implications." In *Networked Self: Identity, Community, and Culture on Social Network Sites*, edited by Zizi Papacharissi. London: Routledge.

Callon, Michel. 1986. "Some Elements of a Sociology of Translation: Domestication of the Scallops and the Fishermen of St. Brieuc Bay." In *Power, Action, and Belief: A New Sociology of Knowledge*, edited by John Law, 32:196–223. The Sociological Review.

Callon, Michel, and Bruno Latour. 1981. "Unscrewing the Big Leviathan: How Actors Macro-Structure Reality and How Sociologists Help Them to Do so." In *Advances in Social Theory and Methodology : Toward an Integration of Micro and Macro Sociologies*, edited by K. Knorr Cetina and A. Cicourel, 277–303. London: Routledge & Kegan Paul.

Carpentier, Nico. 2011. *Media and Participation: A Site of Ideological-Democratic Struggle*. Intellect Books.

Castells, Manuel. 2009. *Communication Power*. OUP Oxford.

Dahlgren, Peter. 2013. *The Political Web. Media, Participation and Alternative Democracy*. Houndmills, Basingstoke, Hampshire: Palgrave Macmillan.

Dutton, William H. 2009. "The Fifth Estate Emerging through the Network of Networks." *Prometheus* 27 (1): 1–15.

Gerlitz, Carolin, and Anne Helmond. 2013. "The Like Economy: Social Buttons and the Data-Intensive Web." *New Media & Society*, 15(8).

Hobbes, Thomas. 1996. *Leviathan*. Cambridge, UK: Cambridge University Press.

Ito, Mizuko. 2008. "Introduction." In *Networked Publics*, edited by Kazys Varnelis. MIT Press.

Jacomy, Mathieu, Tommaso Venturini, Sebastien Heymann, and Mathieu Bastian. 2014. "ForceAtlas2, a Continuous Graph Layout Algorithm for Handy Network Visualization Designed for the Gephi Software." *PLoS ONE* 9 (6).

Latour, Bruno. 2005. *Reassembling the Social: An Introduction to Actor-Network-Theory*. OUP Oxford.

Latour, Bruno, Pablo Jensen, Tommaso Venturini, Sébastian Grauwin, and Dominique Boullier. 2012. "'The Whole Is Always Smaller than Its Parts' – a Digital Test of Gabriel Tardes' Monads." *The British Journal of Sociology* 63 (4): 590–615.

Mandag Morgen. 2015. "Det Nye Folketing." *Mandag Morgen Front Page: Det Nye Folketing*, September 21.

Marres, Noortje. 2006. "Net-Work Is Format Work: Issue Networks and the Sites of Civil Society Politics." In *Reformatting Politics:*

Information Technology and Global Civil Society, edited by Jodi Dean, Jon W. Anderson, and Geert Lovink, 3–17. London: Routledge.

Meilstrup, Per. 2012. "Oprøret Mod Betalingsringen Er et Medieskabt Falsum." *Berlingske Tidende*, January 17. http://www.b.dk/kommentarer/oproeret-mod-betalingsringen-er-et-medieskabt-falsum.

Pariser, Eli. 2012. *The Filter Bubble: How the New Personalized Web Is Changing What We Read and How We Think*. New York, N.Y.: Penguin Books/Penguin Press.

Parks, Lisa, and Nicole Starosielski, eds. 2015. *Signal Traffic: Critical Studies of Media Infrastructures*. 1st Edition edition. Urbana: University of Illinois Press.

Rekling, Therese. 2014. "Styrket Demokrati Eller Facebook-Tyranni?" *Berlingske Tidende*, February 15. http://www.politiko.dk/nyheder/styrket-demokrati-eller-facebook-tyranni.

Rieder, Bernhard. 2013. "Studying Facebook via Data Extraction: The Netvizz Application." In *Proceedings of the 5th Annual ACM Web Science Conference*, 346–55. WebSci '13. New York, NY, USA: ACM.

Shirky, Clay. 2008. *Here Comes Everybody: The Power of Organizing Without Organizations*. New York: Penguin Books.

Somers, Margaret R. 1995a. "Narrating and Naturalizing Civil Society and Citizenship Theory: The Place of Political Culture and the Public Sphere." *Sociological Theory* 13: 229–74.

—. 1995b. "What's Political or Cultural about Political Culture and the Public Sphere? Toward an Historical Sociology of Concept Formation." *Sociological Theory*, 113–44.

Sunstein, Cass R. 2006. *Infotopia: How Many Minds Produce Knowledge*. Oxford University Press, USA.

Venturini, Tommaso, Anders Kristian Munk, and Mathieu Jacomy. forthcoming. "Actor-Network VS Network Analysis VS Digital Networks Are We Talking About the Same Networks?" In *DigitalSTS: A Handbook and Fieldguide*, edited by D. Ribes and J. Vertesi.

Notes

1 Translated to English from the original Danish by the author.

2 "All acts of engagement" include not only posts and comments, but also likes and shares of posts and comments.

akademisk kvarter
academic quarter

Volume 15. Autum 2017 • on the web

Reassembling surveillance creep

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Abstract

We live in societies in which surveillance technologies are constantly introduced, are transformed, and spread to new practices for new purposes. How and why does this happen? In other words, why does surveillance "creep"? This question has received little attention either in theoretical development or in empirical analyses. Accordingly, this article contributes by demonstrating how Actor-Network Theory (ANT) can advance our understanding of 'surveillance creep'. Based on ANT's model of translation and a historical study of the Danish DNA database, we argue that surveillance creep involves reassembling the relations in surveillance networks between heterogeneous actors such as the watchers, the watched, laws, and technologies. Second, surveillance creeps only when these heterogeneous actors are adequately interested and aligned. However, obtaining and maintaining such alignment may be difficult.

Keywords surveillance, creep, Actor-Network Theory, translation, DNA databases

Introduction

When the Danish police implemented their DNA database in the year 2000, it was a tool for preventing and investigating a limited set of serious crimes. Only a small group of individuals were to be registered in the database: those who had been charged with crimes such as terrorism, homicide, sexual assaults, battery, and arson (Justitsministeriet 2000). Today, however, the database is an integrated part of all types of police investigation. Anyone may be registered by the police in the DNA database if they have been charged with a criminal offence incurring a prison sentence of 18 months or more. The database has grown rapidly, and today it holds the DNA profiles of more than 110,000 people. In parallel with the increase in the database's scale and scope, the individuals registered in it are now subject to control not only by the Danish authorities but, following the European Union (EU) Prüm Treaty, by all EU police forces, who can order searches in each other's DNA databases.

Such developments are frequently described as "surveillance creep" or "function creep" (Nelkin and Andrews 2002; Marx 2005; Pierpoint 2011). Scholars of surveillance have characterised these phenomena as key dynamics in the formation of surveillance societies (e.g. Haggerty and Ericson 2005, 18). Yet these notions of creep are rarely distinguished, subjected either to empirical analyses or to theoretical discussion. Instead, they are used for criticising unchecked and undemocratic diffusions of surveillance in society (Webster 2009; Ball, Haggerty and Lyon ed. 2012; Fuchs 2013). Concepts and analyses are therefore in short supply which can guide our understanding not only of how surveillance technologies proliferate but also of how that proliferation contributes to the development of surveillance societies.

The purpose of this article is to demonstrate how Actor-Network Theory (ANT) can be used to understand "creep". ANT's focus on chains of translation is useful for understanding how technologies move through society and are transformed in the process. Although we focus specifically on surveillance creep, ANT is an approach that makes it possible to study all kinds of technological creep.

The choice of ANT as a theoretical framework has a number of implications. First, surveillance creep is not seen as an automatic

diffusion of surveillance in society. Rather, creep is seen to occur when actors take up and reassemble the heterogeneous relations in surveillance networks – between e.g. the watchers, laws, technologies, and the watched – to suit their own purposes. Surveillance creep is therefore not necessarily a negative phenomenon, but is simply understood as a relation between the spread and transformation of technologies. Second, surveillance creep can only happen when these actors are adequately aligned. Such alignments may be difficult to obtain and maintain. Betrayal or conflict may lead to disalignment, which could cause the new network to dissolve or end up in a state of limbo (Latour 1996).

In the article, we demonstrate these ideas through two stories of surveillance creep from the history of the Danish DNA database (Bøge 2015). The first case of creep concerned a shift in the purpose of the database from being a tool meant for investigating serious crimes to one aimed predominantly at burglary. This shift occurred as a local police district created a new practice of investigation by changing the relations between laws, technologies, and the people at whom they were aimed. The second occurrence of creep concerned the transformation of the DNA database from a national tool of investigation to a node in a European network of DNA databases. In this story, we see how making surveillance creep can be difficult when actors are disaligned, and how creep is stalled because of it.

Surveillance creep as translating interests and aligning actors

"Creep" is often used to describe a perpetually evolving undergrowth of alterations in surveillance practices and technologies which are often difficult to perceive and which can have negative consequences (Marx 1988; Pierpoint 2011). In surveillance discourses, creep has to do with changes which lead away from the original purpose of surveillance technologies or practices (Dahl and Sætnan 2009; Lyon 2007, 201). Such changes may occur when, for example, collected data are suddenly used in a different way when new functions are added to a surveillance system, or when technology spreads from one sphere in society to another (Bøge 2015). As mentioned, despite the importance of such phenomena for our understanding of the surveillance society, there has been little theoretical discussion or empirical investigations.

According to David Lyon (2007, 52), surveillance creep is often understood from a technological determinist perspective (Ellul 1964; Winner 1977). In this perspective, surveillance technologies will automatically spread through society and change it to fit an intrinsic logic. Such interpretations mirror public discussions of surveillance, which see it as an existential threat to democratic society. Although David Lyon and others warn against technological determinism, this understanding still seems to thrive in studies of surveillance.

Yet other interpretations also exist. For instance, Dahl and Sætnan (2009) employ ideas from Social Construction of Technology (SCOT) to explain surveillance/function creep. They argue that creep occurs because the users are creative, because surveillance technologies have interpretive flexibility, and because of shifts in the "moral terrain" once surveillance technologies have been installed.

In this article, we are also pursuing a constructivist line of thought, but from a different angle. In general ANT enables an understanding of surveillance as networks in which human and non-human actors are arranged and aligned. At the same time, ANT contains a specific theory about how creep can be understood. This is the *model of translation* (Latour 1984; Callon 1986), which is explained through its contrasting (technologically determinist) *model of diffusion*. In the model of diffusion, technologies are endowed by their creator with an original inner force or inertia which sets them in motion until they meet resistance. Conversely, society is understood as a medium of resistance, which stops or slows down the technology. In other words, the technology moves through an already existing society and if the technology has sufficient impetus, it will penetrate society without changing its character. Thus what needs to be explained and understood according to this model is not the successful spread of a technology, but rather the societal forces that set obstacles in its path. In the context of surveillance creep, this is akin to saying that cameras have spread from banks and high-risk areas to stores and public spaces because no social resistance was encountered.

In the ANT model of translation, the inertia of technologies and resistance in societies are taken away. There is no energy that can be conserved, and no *a priori* distribution of agency. Instead, it is argued that:

> "... the spread in time and space of anything – claims, orders, artefacts, goods – is in the hands of people; each of these people may act in many different ways, letting the token drop, or modifying it, or deflecting it, or adding to it, or appropriating it [...] In other words, there is no inertia to account for the spread of a token. When no one is there to take up the statement or the token then it simply stops." (Latour 1984, 267).

If we accept the model of translation, we must try to identify and describe the *moments of translation* in order to understand the proliferation of technologies or surveillance creep. Translations, in Latour's terminology, are processes by which actors are drawn together or apart. During moments of translation human and non-human actors are interested, enrolled, mobilised or displaced in networks around technologies or ideas, which are made more or less real in the process. The socio-technical is thus formed through translations, and both the ideas/technologies and the networks around them are likely to change when actors are added to the network. Importantly, these translations do not stop simply because technologies are implemented in practice. As de Laet and Mol (2000) have demonstrated, translations of technologies continue long after they are seemingly "black boxed," which makes them appear "fluid". When surveillance technologies undergo continuous translations of this kind after their implementation in a way that changes their purpose, we can identify them as surveillance creep. This idea is demonstrated in our first story.

Importantly, ANT asserts that aligning an adequate network of actors in a common cause and keeping them aligned can be a difficult task. Enabling surveillance creep can therefore be hard work. It may require creative acts of seduction, persuasion, brute force or even Machiavellian strategies to keep everyone in check (Latour 1987). Actors are considered to be volatile, and the betrayal of just a few actors can in the worst-case scenario lead to the dissolution of the whole network (Callon 1986). However, ANT also opens up the possibility that ideas or technologies can become stuck in limbo as the networks around them become temporarily disaligned without collapsing. Bruno Latour's (1996) study of the French high-tech automated subway system called "Aramis" exemplifies

a prolonged version of this state of existence in recounting the slow demise of a glorious project. A similar situation is demonstrated in our second story.

Lastly, in this game of "adequate alignment," technologies are not passive entities merely open to interpretation or objects that are simply "picked up." Technologies and other non-human actors have agency, according to ANT. They may interest human actors and ascribe roles to them or resist enrolment. They bend the space and time around human actors and are able to make them more (or even less) moral. For instance, Latour describes how speedbumps pose a threat to fast-moving cars and therefore force us to drive more carefully, while the availability of weapons may cause us to seek rapid and violent solutions to problems (Latour 1992; 1999).

Two stories of the Danish DNA database and surveillance creep

We turn now to analysing two historical instances of surveillance creep in the context of the Danish DNA database. Through these stories, we illustrate our two main theoretical points: first, that surveillance creep occurs when actors take up and reassemble the heterogeneous relations of surveillance networks; and second, that surveillance creep requires an adequate alignment in the new constellation, but that this may be difficult to obtain.

First story: from murderers and rapists to burglars and pushers

In January 2001, the Danish DNA database was six months old. It contained the DNA profiles of some 400 people in addition to 300 unidentified biological samples. At this point, the database software had found its very first hits. But the results were surprising, because the hits contained DNA profiles from burglars. This was surprising because the database had been implemented by the Danish parliament primarily to investigate homicide, sexual assault, arson, and battery. Burglary had never been mentioned in the six years of political debates or the stream of official documents on the DNA database prior to its implementation, and registration of burglars in the DNA database was not permitted. What had changed the purpose of the DNA database and caused this surveillance creep? In this first story, we show that this surveillance creep occurred because a local police department wanted to solve their bur-

glary problem and created a new investigatory practice by reassembling the relations between the law, new technologies and the burglars. Furthermore, we describe how other police departments take up the new practice and normalises it but also changes it for their own purposes.

The surveillance creep began in the autumn of 2000 on the Danish island of Bornholm. In order to combat "an epidemic of burglaries," the local police force decided on a new initiative and figured out a way to exploit the new police DNA database. As mentioned, the database had been implemented for investigating specific serious crimes; the police were not permitted to register persons who had been identified as having been charged with burglary. However, the Bornholm police force found a way to use the DNA database for their new purpose by aligning three actors into a new practice, which caused the database to creep.

The first actor was a new and improved DNA analysis technique (PCR). The old technique (RFLP) required visible amounts of blood or semen. DNA analyses had therefore not been used in burglary investigations. The new technique, however, made it possible to create DNA profiles from minuscule biological traces such as the saliva on cigarette butts or on used soft-drink bottles. In ANT terms, the new technique translated the police's crime scenes and filled them with new potential traces of DNA. The second actor was the burglars themselves. The police had observed that burglars tended to leave these specific traces behind. DNA profiles could now be extracted from the cigarette butts or soft-drink bottles that police frequently found left behind at crimes scenes. The burglars themselves thus became inscribed as actors in this surveillance creep (see also Albrechtslund and Lauritsen 2013). The third important actor was a loophole in the law regulating the DNA database. This loophole meant that although *identified* burglars could not be registered, the police could register *unidentified* DNA profiles from all the biological traces left at all crime scenes – including burglaries – in the DNA database.

In combination, these three actors allowed the Bornholm police to use the DNA database to target their burglary problem in a creative fashion. A new investigatory practice was established, whereby the Bornholm police would carefully search for and collect used soft-drink bottles and cigarette butts likely to have been left behind

by the unsuspecting burglars, then ask the national police to store the DNA profiles drawn from these traces in the DNA database. When individuals were charged with burglary, they were then also required to give a blood sample for a DNA profile. This was compared with the DNA database, but not registered in the database, as this would have been against the law.

The new practice was publicised in the early months of 2001, when the Bornholm police succeeded in catching a burglar whose DNA profile, when it was searched in the DNA database, matched four unidentified DNA profiles. The hit led to a wider investigation and the burglar was eventually charged with 44 counts of burglary and theft. This was a great success for the new practice, which had shown its potential. The case was reportedly followed closely by the national police, as this was the first time the DNA database had been used in this way. In the following years, the practice became normalised: most police districts took it up and applied it in their own work. Thus, in 2004, the number of unidentified DNA profiles from burglaries in the DNA database greatly exceeded all other types of identified and unidentified DNA profiles combined. But the practice had also been translated by different police districts for their own purposes. For instance, in Copenhagen the police began collecting DNA evidence from cigarette butts and soft-drink bottles during raids on hash markets, with a view to connecting pushers to the pusher stands they so quickly abandoned when the police showed up. Such different uses were possible because the connections made between the new DNA analysis technique and the loophole in the DNA database regulations were so broad.

A new practice had thus been created by the Danish police through the successful translation of technology, law, and the burglars themselves by a local police force enacted in order to solve a specific problem. The practice spread and became normalised after a spectacular success, which in turn informed other police districts and became the dominant way of using the database. But it was also taken up and translated by police districts for additional purposes. Finally in 2005, the Danish parliament agreed to expand the DNA database so that burglars, pushers, and most other criminals charged with crimes bearing prison sentences could be registered as well.

Second story: building an international surveillance network

In the first story, the burglars and pushers, the DNA technologies, and the laws were brought together quite easily by the police. However, this is not always so easy as the same kinds of actors may resist being enrolled and aligned. The following short account illustrates such difficulties of alignment. We describe the efforts made to translate the various national European DNA databases into a comprehensive surveillance network, as well as the problems with aligning laws, DNA profiles, software, and politicians.

When the Danish DNA database was decided on, it was intended as a tool for investigation and control by the Danish police. However, as with the first story of surveillance creep, the purpose of the database became imperceptibly broadened as it was used to support other European countries' police investigations. By 2004, the exchange of DNA profiles with other EU police forces had become normal. As the head of the DNA section at the Danish national police explains, "We have perhaps a couple of hundred DNA profiles from unsolved crimes in other countries in our database" (Søgaard 2004). This statement was made to the Danish press after the practice had helped connect a Danish man to a murder in Norway. But bilateral exchanges of DNA profiles like these were only the beginning of a much more extensive surveillance creep. Simultaneously, a development was taking place within the EU whereby member states sought to connect all their DNA databases in a European network. On 27 May 2005, representatives of seven EU countries gathered in the German city of Prüm agreed on a treaty intended to intensify EU cross-border police cooperation. Three years later, on 23 June 2008, important parts of the treaty became elevated to EU law. Among other things, the treaty envisioned connecting all EU member states' police DNA databases. Rather than providing full access, member state police forces would be able to ask each other's DNA databases to search for specific DNA profiles and get an automatic "hit" or "no hit" response within 15 minutes. The network was supposed to be in place by August 2011. However, a series of actors proved difficult to align. As Barbara Prainsack and Victor Toom (who have described the history in greater detail) have argued (2012), the story of Prüm has been "heterogeneous and halting" rather than "linear and harmonious."

First, not all EU countries had DNA databases in 2008. Those that did not had to implement them, and several governments had problems "with mobilising political majorities to adapt national law to the Prüm provisions" (Prainsack and Toom 2012, 75). Second, the DNA profiles differed from member state to member state, as they had been defined based on national genetic compositions. In 2008 there was only a partial overlap between the systems in the various DNA profiles. This was problematic because it was proven that the partial comparability combined with the hugely increased numbers of comparisons in the new network could lead to false positives. Only after intense collaboration between geneticists across Europe was it possible to create and standardise a set of common DNA systems, which has now been added to the member states' original DNA profiles. Third, many of the DNA database software systems controlling the member state DNA databases had been "home-grown" and so could not be made to communicate with the other databases. These systems had to be replaced. This proved not only technically difficult, but slow and expensive. This in particular is the reason why the network is only partially functional five years after it was supposed to be fully implemented. While the network is working for core countries such as Germany, the Danish DNA database, like those of some other countries, is not yet fully connected. Lastly, Britain's exit from the EU will mean that the largest DNA database in the union will cease to be a partner in the network.

The lack of DNA databases and political majorities, differing DNA profiles and differing DNA database systems are all examples of disalignments that have slowed down the effort to create an international network of European DNA databases. Several of these problems have been solved, or are expected to be solved soon, but the point remains: aligning actors and achieving surveillance creep can be hard work.

Conclusion

The concept of surveillance creep addresses a fundamental dynamic whereby surveillance societies are created and maintained. It is therefore surprising that so few attempts to study and discuss surveillance creep have been made.

In this article, we have demonstrated that ANT offers concepts and ideas that are productive for this purpose. Through ANT and our analyses of the historical development of the Danish DNA database we learn that surveillance does not creep simply because of creative actors or technological impetus. Rather, surveillance creep can be seen as the art of reassembling existing surveillance networks. This involves a translation of interests and the achieving of adequate alignments between heterogeneous actors such as laws, technologies, the watchers and the watched in order to shift the purpose of surveillance technologies or practices. Importantly, while these developments may appear fluid as actors continue to re-shape practices for their own purposes, the processes are not automatic. In fact, rearranging relations may be hard work.

ANT can contribute to our understanding of surveillance creep but further empirical and theoretical work is needed. In particular, studies are needed to understand phenomena like the rapid spread of surveillance cameras, the mushrooming of government databases, and parents' increasing surveillance of their children through smartphones.

References

Albrechtslund, Anders, and Lauritsen, Peter. 2013. "Spaces of Everyday Surveillance: Unfolding an Analytical Concept of Participation." *Geoforum*, *49*:310–316.

Lyon, David, Ball, Kirstie, and Haggerty, Kevin eds. 2012. *Routledge Handbook of Surveillance Studies*. New York: Routledge.

Bøge, Ask Risom. 2015. "DNA and Surveillance: ANT studies of DNA Profiling in Danish Police Work." PhD Dissertation, School of Communication and Culture, Aarhus University.

Callon, Michel. 1984. "Some elements of a sociology of translation: domestication of the scallops and the fishermen of St Brieuc Bay." *The Sociological Review*, *32*:196–233.

Dahl, Johanne Yttri, and Sætnan, Ann Rudinow. 2009. "'It all happened so slowly': On controlling function creep in forensic DNA databases." *International Journal of Law, Crime and Justice*, *37*(3):83–103.

De Laet, Marianne, and Mol, Annemarie. 2000. "The Zimbabwe Bush Pump: Mechanics of a Fluid Technology." *Social Studies of Science*, *30*(2): 225–263.

Ellul, Jacques. 1964. *The Technological Society*. Alfred A. Knopf Inc.
Fuchs, Christian. 2013. "Societal and Ideological Impacts of Deep Packet Inspection Internet Surveillance." *Information, Communication & Society*, *16*(8): 1328–1359
Ericson, Richard, and Haggerty, Kevin. 2006. *The New Politics of Surveillance and Visibility*. Toronto: University of Toronto Press.
Justitsministeriet. 2000. "Lov om oprettelse af et centralt dna-profilregister". Law no. 434, May 31 2000.
Latour, Bruno. 1984. "The Powers of Association." *The Sociological Review*, *32*: 264–280.
Latour, Bruno. 1987. *Science in Action*: *How to Follow Scientists and Engineers Through Society*. Harvard University Press.
Latour, Bruno. 1992. "Where are the Missing Masses? The Sociology of a Few Mundane Artifacts." In Wiebe Bijker and John Law eds. *Shaping Technology/Building Society*: *Studies in Sociotechnical Change*. Cambridge: MIT Press.
Latour, Bruno. 1996. *Aramis, or The Love of Technology*. Cambridge: Harvard University Press,
Latour, Bruno. 1999. *Pandora's Hope*: *Essays on the Reality of Science Studies*. Cambridge: Harvard University Press
Lyon, David. 2007. *Surveillance Studies*: *An Overview*. Polity Press
Nelkin, Dorothy, and Andrews, Lori. 2002. "Surveillance Creep in the Genetic Age." In Lyon, David ed. *Surveillance as Social Sorting*: *Privacy, Risk, and Digital Discrimination*. Psychology Press.
Marx, Gary. 1988. *Undercover*: *Police Surveillance in America*. University of California Press
Marx, Gary T. 2005. "Seeing Hazily (But Not Darkly) Through the Lens: Some Recent Empirical Studies of Surveillance Technologies." *Law & Social Inquiry* 30.2: 339–399
Pierpoint, Harriet. 2011. "Extending and Professionalising the Role of the Appropriate Adult." *Journal of Social Welfare and Family Law* 33.2: 139–155
Prainsack, Barbara, and Toom, Victor. 2013. "Performing the Union: the Prüm Decision and the European Dream." *Studies in History and Philosophy of Science Part C*: *Studies in History and Philosophy of Biological and Biomedical Sciences* 44.1: 71–79
Søgaard, Jan. "Norsk sex-mord opklaret af dansk dna-register." *BT*, April 17, 2004.

Webster, William. 2009. "CCTV Policy in the UK: Reconsidering the Evidence Base." *Surveillance and Society* 6.1: 10–22

Winner, Langdon. 1977. *Autonomous Technology*. Cambridge: MIT Press

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Visualising Historical Networks

Family Trees and Wikipedia

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Abstract

This article situates itself within the growing field of digital heritage and will explore methods for digital representation of historical network. This includes a social family network as it is typically presented in a genealogical structure, consisting of all family members, as well as a network created by hyperlinks and linked data on Wikipedia. It uses the family tree of the Drachmann family in 19th century Copenhagen as a case to explore and compare these networks in a digital framework.

It will use the potential conflicts between Actor-Network Theory and Feminist Theory to frame this discussion.

Keywords family trees, GEDCOM file format, Wikidata, linked data, visualising history

Introduction

Publishing and visualising heritage material on digital platforms is important for research purposes as well as public dissemination and is a growing research area within the field of digital heritage. This cross-disciplinary field brings information science discussions

of data management, information retrieval and access to the work of digitisation and dissemination of heritage materials online (Ruthven and Chowdhury 2015). Many current information systems in heritage include very basic search and browse facilities, which become difficult to navigate when more and more heritage information becomes available through massive and continuous digitisation. Therefore, other methods for visualisation that encourage engagement and interaction with this material are currently being explores from several angles (Clough *et al*. 2015, 213-214).

Today the most popular form of engagement with heritage material in the public sphere is through family-history or genealogy. The web is host to thousands of websites and communities that allow the public to sift through history in search of their own ancestors and their own history (De Groot 2016, 71-72). In order to tap into this keen interest in the very pressing quest for social impact it makes sense to consider methods for visualising heritage material that also focus on family networks.

Social networks, such as families, and the influence of these in historical power structures is a well-established subject within the field of history, particularly in relation to medieval power structures across Europe. This is most noticeable when it comes to the inter-marriage between powerful families and royal houses, as well as being a key element in the control of property (Lyon 2013, 16). However, in relation to intellectual and creative developments in 19th century, the role of families has largely been ignored. When family relationships are acknowledged in a medieval context it is also with a strong focus on male lineage rather than, sisters, mothers, daughters or the entire family network, thus leaving large gaps in our understanding of family relationships and the opportunities which they afforded to individual family members (Bastress-Dukehart 2008, 62).

This article will explore two different methods for visualising and understanding a historical family network using the Drachmann family of 19th century Copenhagen as a case. The first is a more traditional method with a hierarchical family tree, which explores a visual tree-like structure and an encoded data structure using the file format GEDCOM. The second method looks at the same family in Wikipedia first through hyperlinks and secondly as linked data in Wikidata. The article will discuss the similarities and differences

between these two network representations of the same family and the consequences of this as it is related to the potential conflicts between Actor-Network Theory (ANT) and Feminist Theory.

Case: Drachmann family

The 19th Century Drachmann family in Copenhagen, Denmark, is perhaps best known through poet and artist, Holger Drachmann. Other notable family members include his older sister, Erna Drachmann (married Juel-Hansen), who was active as a Danish suffragette and pedagogue, as well as his cousins: Teacher and vice headmistress, Emma Holmsted (married Hørup), who married another cousin, politician, editor and co-founder of the Danish newspaper Politiken, Viggo Hørup, who again had a long-standing relationship with a third cousin, teacher and suffragette, Henriette Steen. What makes this a remarkable and interesting family is that despite their shared grandparents' (Lovise Kobiersky and Mathias Drachmann) rather humble life in Copenhagen, several members of this third generation acquired some quite prominent intellectual and creative positions in 19th Century Copenhagen. Nevertheless, only the achievements of the male family members were recorded outside of the Danish Women's Biographical Lexicon hosted by KVINFO (Danish Centre for Gender, Equality and Diversity), thus construing their place in history as their own singular achievements rather than their part in a family network of intellectually and creatively active men and women.

This is mainly because understanding of the past is not influenced directly by the past but by the dominant versions of the past (Corrigan and Mills 2012). So if the dominant views of the past only visualise a partial network of historical person's connection to each other as in the case of the Drachmann family, then our historical understanding of the past is based on this biased network. The influence of siblings, cousins, and in-laws, and in particular female family members is hidden. This leads to an understanding of history that excludes family networks in general and women specifically (Ewan and Nugent 2008).

The focus on family networks comes from genealogy where there would traditionally be a focus on finding direct (male) lineage (Bastress-Dukehart 2008). However, genealogy or family history has become such a popular leisure activity, stereotypically among the

newly retired elderly, but certainly also amongst other age groups too (Ridge 2017). The web facilitates this activity immensely and is the main reason for the growth in popularity of this leisure activity. First and foremost it has become much easier to access information about family members over the web. Secondly, the web has facilitated the building of family trees in an effortless and fairly uncomplicated manner. Thirdly, and most importantly for some, the web allows for the sharing and connecting between family trees/networks. Suddenly, it is possible with the click of a button to get in touch with a distant family member who also has an interest in your shared ancestors.

It can be argued that Wikipedia forms one of the most dominant views of the past, with its overarching goal of providing access to the "sum of all human knowledge" ('Wikipedia:Purpose' 2016; Rosenzweig 2006). Wikipedia is however currently in the midst of an ideological battle about what should be included in the concept of all the world's knowledge and particularly who should be included (Ford 2016). Feminist and black lives matter movements are currently working on including more women and people of colour into the fabric of history by adding these people and their histories to Wikipedia (Roued-Cunliffe 2017). But one of the main obstacles is the concept of notability which has over time become a cornerstone for Wikipedia (Wagner *et al.* 2015). The doubts cast on these peoples notability in terms of inclusion into Wikipedia (Borgen *et al.* 2016) is mirrored by their absence from traditional historical accounts. However, "all constructions are historically contingent, no matter how stabilized" (Star, 1991, p. 38). This goes for Wikipedia as well as more traditional historical accounts, bibliographies and encyclopedias. This is a matter that the Wikimedia Foundation is focused on and one analysis found that when comparing to traditional biographies Wikipedia already contained a much better weighting of women (Reagle and Rhue 2011).

The Family Tree

There are two traditional ways of viewing a family in a tree-structure. You can begin from the bottom and show the ancestors of a person above them with the parents to either side and the parent's parents above them. This is a very popular chart in most current genealogy software as most people would begin their own family

history research with themselves or their parents in the middle and then work back from there. Langholz (1989) does this by tracing back the male lineage of Holger Drachmann to his ancestor Geert Drachmann, born around 1679 in Bremen.

The other method, begins with someone further back in time, or an older family member, perhaps a couple and draw connections down to their children. Each child leads to further connections to a spouse and their children and so forth. Today many family historians would input their family members into a digital system where you can add family members both forwards and backwards in time. In other words, for a single person, you can add both their parents and their children at the same time, which gives more of an hourglass appearance to the individual's family chart. Once these family members are in the database you can choose to view a chart of the person's ancestors, descendants or both at the same time.

In the case of the Drachmann family the focus is on the descendants of Lovise Kobersky and Mathias Drachmann, beginning with them and listing their children together with their spouses. Under the children is listed each new family's children and their spouses and so forth (fig. 1).

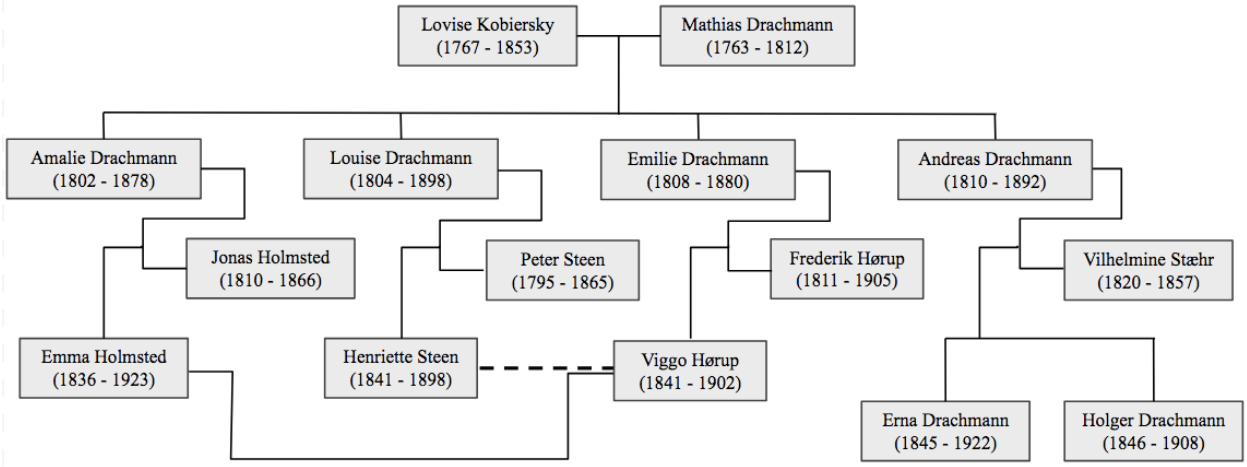

Fig. 1 Family tree for Lovise Kobiersky and Mathias Drachmann with select descendants (not complete).

The GEDCOM file

Most family history research today happens digitally with more and more people being able to connect their family tree datasets to each other, thus potentially creating a large historica[1] network of humans that have lived. It is a fascinating thought and there are big collaborative projects dedicated to do just that1. Others focus more on their own family and meeting distant living relatives. Whatever the motivation some sort of standard file type that enables sharing of these family networks and the years of work that has gone into them, needed to be developed. The most resilient one has turned out to be the GEDCOM (Genealogical Data Communication) format. It was first released in 1984 by The Church of Jesus Christ of Latter-day Saints (Jones 2010). GEDCOM files are plain-text files which list individuals after a unique numbering system. For each individual the GEDCOM format lists bibliographical metadata as well as links to families. Individuals are linked through families and each family can contain only parents and their children (fig. 2). Perhaps not surprising when you consider the origin of the GEDCOM format it does promote a very binary view on genders and family structures. For example families can only contain one mother and one father, or rather one wife and one husband. However, due to a quirk in the format there is an assumption that the individual linked to the family as a husband is male and the individual linked as a wife is female (Jones 2016). Therefore, neither GEDCOM or GEDCOM readers actually run checks to make sure that this is the case and people are thus free to add a same sex couple as husband and wife in GEDCOM. They will however still be referred to as husband and wife, mother and father.

```
0 @F122@ FAM
1 WIFE @I375@
1 HUSB @I376@
1 MARR
2 DATE ABT 1790
1 CHIL @I377@
1 CHIL @I380@
1 CHIL @I381@
1 CHIL @I360@
```

```
0 @I377@ INDI
1 NAME Amalie /Drachmann/
2 GIVN Amalie
2 SURN Drachmann
2 _MARNM Amalie /Holmsted/
1 SEX F
1 BIRT
2 DATE 1802
1 DEAT
2 DATE 1878
1 FAMC @F122@
1 FAMS @F123@
```

```
0 @F123@ FAM
1 WIFE @I377@
1 HUSB @I388@
1 CHIL @I393@
```

Fig. 2: GEDCOM records featuring Amalie Drachmann. 1) the family she was born into where she is listed as a child, 2) her record, 3) the family she had with her husband.

Wikipedia

On Wikipedia people just as concepts, places, and everything else are linked together through hyperlinks. Hyperlinks are the foundation stone of the web as Tim Berners-Lee imagined it (Berners-Lee *et al.* 2001). Each page on Wikipedia will through hyperlinks in the text link to many other pages. For example, on Holger Drachmann's article, his father's name, Andreas Georg Drachmann, is a link to the article on the father. How many links and where they are placed is completely up to the editors working on the page. Because these links form a part of the text that is written they can in theory be links to anything. Here it is possible to write that Holger Drachmann is a cousin of Viggo Hørup, Emma Holmsted and Henriette Steen, or that he was very close to his older sister Erna Drachmann. Each mention of these people will have a link to each of their own pages if they themselves are deemed notable enough to have a page. Sometimes someone is deemed notable enough to have a page but the page just has not been created yet. In these cases the hyperlink to the person will be displayed in Wikipedia as red instead of the active blue link (fig. 3).


Familie

Holger var lillebror til pædagog og kvindesagsforkæmper Erna Juel-Hansen, halvbror til klassisk filolog Anders Bjørn Drachmann og fætter til politikeren Viggo Hørup, samt Viggos kone, viceskoleinspektøren Emma Hørup, og lærerinde Henriette Steen.

Fig. 3: Screenshot showing how Holger Drachmann's family network could be mentioned on Danish Wikipedia.

Wikidata

Wikidata is, like Wikipedia, an entity under the Wikimedia Foundation. It is built on the concept of linked data which can be expressed in many different formats and mainly consist of triplets linking together the subject, the predicate and the object (Berners-Lee *et al.*, 2001).

subject -> predicate -> object

These triplets can be used to express any kind of relationship between elements for example:

Holger Drachmann -> is part of -> Drachmann family

Where "Holger Drachmann" is the subject, "is part of" is the predicate linking the subject to the object and "Drachmann family" is the object that is being linked to. In Wikidata it is possible to tie people together in family relationships through the predicates: mother, father, child(ren), sister, brother, and spouse (fig. 4).

Fig. 4: Screenshot of Wikidata for Holger Drachmann with family ties to his father and sister.

The strength of the linked data approach of Wikidata is that you can produce tools like GeneaWiki[2] (fig. 5), which can visualise this family network through the use of certain predicates (i.e. mother, father and children). In order to view this network in a manner bearing a closer resemblance to a family tree it would be useful if the network also used the predicate spouse. However, the nature of Wikidata tools is such that anyone could develop this if they found a need for it. The main advantage of WikiData is the ability to link instances of a Wikipedia article in one language to the same article in another language. For example a page about Holger Drachmann is available in 16 different languages on Wikipedia because he is an internationally renowned poet. Other family members may not be of the same interest to as many language Wikipedias as him, but through Wikidata they and their relationship to Holger can still be discovered.

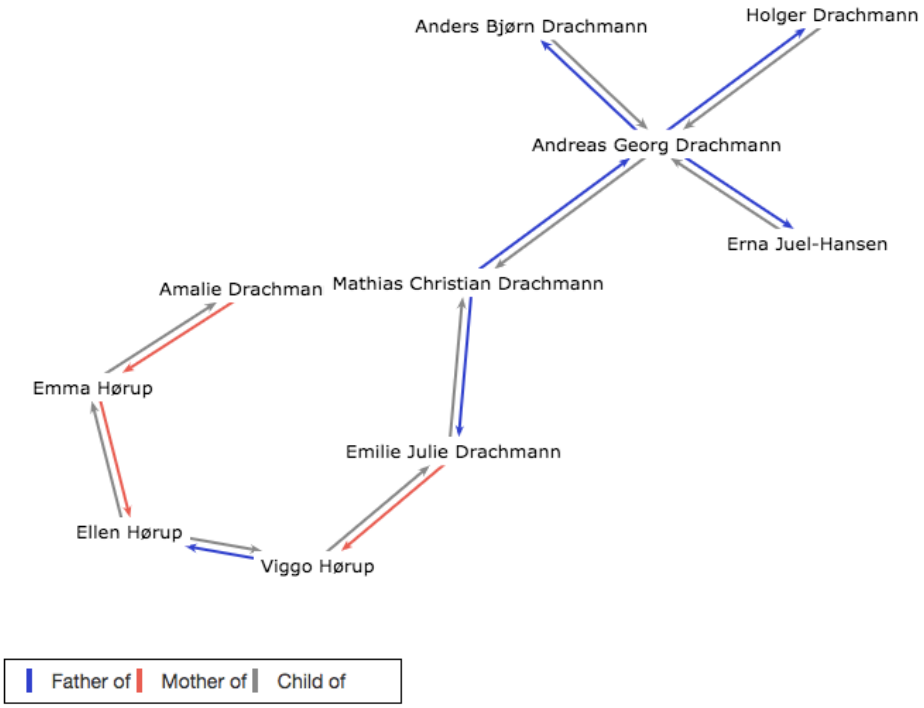

Fig. 5: Screenshot of GeneaWiki network based on Wikidata links which shows the relationship between Holger Drachmann and journalist and author Ellen Hørup. Red arrows: Mother of, Blue arrows: Father of, Grey arrows: Child of.

Comparing family network visualisations

While feminist scholarship encourages us to look through the lense of the marginalised to see power structures it is also clear that in order to understand the full messiness of this creative network of family members it requires something like ANT to comprehend its full extent and potential (Quinlan 2012). However, ANT does not let us see what is missing in the network (Corrigan and Mills 2012), only Feminist Theory will spot that there are few women on Wikipedia for example.

The above-mentioned four methods for visualising family networks each include and exclude different parts of this potential family network. On Wikipedia it is possible to add information about family members but in order to link them each family member must have their own Wikipedia article and this is at odds with

Wikipedias notability policy. I first became interested in the Drachmann family through journalist Ellen Hørup. At the time only her father, Viggo Hørup, was on Wikipedia and there was a short mention of how he was a cousin of Holger Drachmann. Keeping in mind my knowledge of genealogy I was intrigued and as I examined the female members of the family I realised how this connection was not only between Viggo Hørup and Holger Drachmann but that there was a larger family network present, tied together by Holger's father and at least four of his sisters. The women in the family were particularly active in the Danish suffragette movement of the late 19th century.

On the other hand, the traditional methods for visualising family networks used in genealogy only allow us to link spouses, parents and children. However, it is by no means a guarantee that people who are directly related have a relationship that can for example lead to creative and intellectual innovation. However, in Wikipedia, the free-text format with embedded hyperlinks allows for the expression of these kinds of relationships. For example in the words of Emma Holmsted, when writing about her uncle, Andreas Georg Drachmann:

> His house was an open and hospitable refuge both before and after my marriage with Viggo Hørup; here we met many distinguished men and women, and made friends with not so few of the circle of young people who gradually gathered around Holger Drachmann and his family.[3]

This type of information or even the quote itself is suitable on Wikipedia, where links can be added to the different people mentioned and their Wikipedia pages. This enables us to express that certain family members had a very close relationship as well as include people with no direct family ties in this relationship, but only if they are notable. In contrast a typical family tree has room for everyone directly related no matter how obscure they may be in the public eye. In Wikidata there is also a notability demand with an exception, in that elements can be added if they serve a structural purpose for the network. I would argue that the women in the Drachmann family, in particular the sisters of the second generation, indeed do serve a structural purpose, even if not enough is known

about them to deem them notable, simply because they connect the different family members of the third generation in order to understand the family as a network rather than a collection of notable people.

	Family Tree	GEDCOM	Wikipedia	WikiData
Only notable people	No	No	Yes	Mainly with exceptions
Only direct family relationships	Yes	Yes	No	Yes
Include nature of relationship	No	No	Yes	No
Easily accessible online	Partially	Partially	Yes	Partially

Conclusion

The different methods for visualising family networks presented here serve different purposes for understanding family networks and the way they have influenced the people in and connected to a certain family. A traditional family tree in a digital format and as a GEDCOM can be accessed online if it has been made public and it is open to all family members no matter how well-known they are. However, it only allows for direct family relationships between parents, children and spouses and does not tell us anything about the nature of these relationships.

This is also the case for WikiData with the exception that here the people included must be notable unless they serve a structural purpose. In contrast Wikipedia enables the inclusion of other relationships and the nature of these as well as being very easy to access online. The issue here is the exclusion of people not thought to be notable from the network. From the perspective of ANT it would be fully possible to understand the very messy network of people surrounding someone like Holger Drachmann through the information available on Wikipedia. However, when adding Feminist The-

ory into the mix the necessity of extending this network to family members who were not as notable as Holger Drachmann is evident. In other words when publically visualising and historically documenting family networks and their significance for society as well as the individual family members it is well worth taking into account the different approaches.

The consequents of this, in terms of using family networks as a method for visualising heritage material, is that no one method provides a complete solution. However, any one of the aforementioned methods is potentially useful for those with an interest in history and can thus give digitised heritage material a wider social impact than is currently the case.

References

Bastress-Dukehart, E. 2008. 'Sibling Conflict within Early Modern German Noble Families'. *Journal of Family History* 33 (1): 61–80. doi:10.1177/0363199007308601.

Berners-Lee, Tim, James Hendler, and Ora Lassila. 2001. 'The Semantic Web'. *Scientific American* 284 (5): 34–43.

Borgen, Maibritt, Nanna Bonde Thylstrup, and Kristin Veel. 2016. 'Introduction: Theme, Gender and Crowdsourcing'. *Nordisk Tidsskrift for Informationsvidenskab Og Kulturformidling 5 (1): 3–8.*

Clough, Paul, Paula Goodale, Mark Hall, and Mark Stevenson. 2015. 'Supporting Exploration and Use of Digital Cultural Heritage Materials: The PATHS Perspective'. In *Cultural Heritage Information: Access and Management*, edited by Ian Ruthven and G. G Chowdhury, 197–220.

Corrigan, L. T., and A. J. Mills. 2012. 'Men on Board: Actor-Network Theory, Feminism and Gendering the Past'. *Management & Organizational History* 7 (3): 251–65. doi:10.1177/1744935912444357.

De Groot, Jerome. 2016. *Consuming History: Historians and Heritage in Contemporary Popular Culture*. Second edition. London ; New York: Routledge, Taylor & Francis Group.

Ewan, Elizabeth, and Janay Nugent, eds. 2008. *Finding the Family in Medieval and Early Modern Scotland*. Women and Gender in the Early Modern World. Aldershot, Hampshire, England ; Burlington, VT: Ashgate.

Ford, Heather. 2016. 'Wikipedia and the Sum of All Human Information'. *Nordisk Tidsskrift for Informationsvidenskab Og Kulturformidling* 5 (1): 9–13.

Jones, Tamura. 2010. 'A Gentle Introduction to GEDCOM'. *Modern Software Experience*. August 24. http://www.tamurajones.net/AGentleIntroductionToGEDCOM.xhtml.

Jones, Tamura. 2016. 'Same-Sex Marriage in GEDCOM'. *Modern Software Experience*. January 17. http://www.tamurajones.net/SameSexMarriageInGEDCOM.xhtml.

Lyon, Jonathan Reed. 2013. *Princely Brothers and Sisters: The Sibling Bond in German Politics, 1100/1250*. Ithaca: Cornell University Press.

Quinlan, Andrea. 2012. 'Imagining a Feminist Actor-Network Theory': *International Journal of Actor-Network Theory and Technological Innovation* 4 (2): 1–9. doi:10.4018/jantti.2012040101.

Reagle, J, and L Rhue. 2011. 'Gender Bias in Wikipedia and Britannica'. *International Journal Of Communication* 5: 1138–58.

Ridge, Mia. 2017. 'The Contributions of Family and Local Historians to British History Online'. In *Participatory Heritage*, edited by Henriette Roued-Cunliffe and Andrea J. Copeland. London: Facet.

Rosenzweig, R. 2006. 'Can History Be Open Source? Wikipedia and the Future of the Past'. *Journal of American History* 93 (1): 117–46. doi:10.2307/4486062.

Roued-Cunliffe, Henriette. 2017. 'Forgotten History on Wikipedia'. In *Participatory Heritage*, edited by Henriette Roued-Cunliffe and Andrea J. Copeland. London: Facet.

Ruthven, Ian, and G. G Chowdhury, eds. 2015. *Cultural Heritage Information: Access and Management*.

Star, Susan Leigh. 1991. 'Power. Technologies and the Phenomenology of Conventions: On Being Allergic to Onions'. In *A Sociology of Monsters: Essays on Power, Technology and Domination*, edited by John Law, 26–56. Sociological Review Monograph 38. London: Routledge.

Wagner, Claudia, David Garcia, Mohsen Jadidi, and Markus Strohmaier. 2015. 'It's a Man's Wikipedia? Assessing Gender Inequality in an Online Encyclopedia'. In . http://arxiv.org/pdf/1501.06307v2.pdf.

'Wikipedia:Purpose'. 2016. *Wikipedia, the Free Encyclopedia*. https://en.wikipedia.org/w/index.php?title=Wikipedia:Purpose&oldid=720292322.

Notes

1 The WikiTree project is a good example of this. http://www.wikitree.com/

2 GeneaWiki by Magnus Manske (https://tools.wmflabs.org/magnus-toolserver/ts2/geneawiki/)

3 Handwritten memoirs of Emma Hørup (1836-1923), transcribed and translated into English by the author of this article. Royal Danish Library, acc. 2001/91, ks. 122a

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Volume 15. Autum 2017 • on the web

The Photograph as Network

Tracing – Disentangling – Relating: ANT as a Methodology in Visual Culture Studies

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Frauke Wiegand is a postdoctoral fellow at the University of Copenhagen working on racism and diversity work in art institutions. Her PhD thesis "Tracing Cultural Memory: Holiday Snapshots at Sites of Memory in an Actor-Network Perspective" investigates the visuality of cultural memory work from an ANT perspective.

Abstract

Inspired by actor-network theory (ANT), this article develops a theoretical framework for grasping the dynamic visual work of cultural memory. It introduces three sensitizing concepts derived from Latourian actor-network methodology, namely entanglement, relationality, and traceability, operationalizing them as methodological tools for reading the net-work of images. The objects of study are two visitor snapshots of the photographic exhibition, *The Story of Soweto*, at the famous Regina Mundi Church in Soweto, South Africa. I demonstrate that, when slightly adjusted for research engaging with visual materials, Latourian concepts are indeed productive for analyzing visual material and visual practices at memorial sites.

Keywords snapshots, cultural memory, visual culture, ANT, tourism

In the study of photography, actor-network theory (ANT) as introduced by Bruno Latour, John Law, and Michel Callon, has been applied in quite a few ways, underlying, for instance, the entwinement of technology and social practice, the camera as social actor (Latour 1991), tourist photography (Jóhannesson et al. 2012), and the study of algorithms of digital photography platforms (van Dijck 2013). The

photograph's inherent visuality, however – its visual work – has not yet been approached as part of or as an actor-network in itself.

The research leading to my investigation of the (digital) photographic document as an actor-network is based on the following initial question: What can we learn about the dynamics of cultural memory by examining mundane accounts of touristic encounters with sites of memory? While looking at tourist snapshots at and of sites of memory with a methodology inspired by ANT and visual theorist Ariella Azoulay's notion of the event of photography, a new relational reading of the visual evolves. The work of Latour and Azoulay can be combined in an approach that captures the agency, the living, of the vernacular, often digital, tourist snapshot. Such a relational analysis of visual cultural memory includes the recording and becoming of the photograph – the practice of picturing and visual encounters with memories at sites – as well as the relations its visual content creates across visual culture.

I will, in this article, focus on and disentangle the event of the visual in such mnemonic acts, describing what it is that we see or are potentially able to see in the tourist snapshot, what we overlook when taking a snapshot, only noticing it later, because the snapshot itself remembers (Azoulay 2012), and what is being connected in visual materials. Central to this investigation is the understanding of the encounter with a site of memory via its visual materials and practices as a *networking visual association*.

I will outline how actor-network methodology helps us to gather all the participants in the visual "event" (Azoulay) of cultural memory work by following their *tracing activities*. Latour's methodological considerations let us treat and analyze the event of the visual in cultural memory as an "effect of collective activity" (Crawford XX) enacted by humans and nonhumans, by objects and other props. The "agency" of objects and media of memory, like photographs, has been analyzed in many classic texts from visual culture studies, such as those by Sturken and Cartwright in *Practices of Looking* (2001) and by WJT Mitchell in *What do Pictures Want?* (2005). In visual anthropology, the work of Elizabeth Edwards and Janice Hart has been ground-breaking in its grasp of the materiality of the physical photograph-as-print and its "archaeology of use." What is further needed in this current moment is an understanding of the digital image and its net-work in yet other nets: the Internet first and foremost.

Fig. 1: Candice Mncwabe's Instagram post from Regina Mundi Church. May 28, 2014. Reproduced here with the photographer's permission.

Reading Tourist Snapshots Relationally

Let us look at the life of one such mobile visitor snapshot, and, in doing so, get a closer view of the work of photographs at specific sites of memory. Figure 1 shows Candice Mncwabe's Instagram post from her visit to the photography exhibition *The Story of Soweto* at the Regina Mundi Church in Soweto, South Africa, in May 2014.

Candice herself appears in the small, almost hidden photography exhibition on the gallery of the famous church that hosted political congregations during and after the Soweto Uprisings in the 1970s and was later home to hearings of the Truth and Reconciliation Commission. Candice is posing with one of the exhibited photographs by Jürgen Schadeberg, called "Mandela in his Cell," taken on Robben Island during a visit to Mandela's former prison cell in 1994. The post also features a range of hash tags from Candice, such as #MySouthAfrica #OurJourney and #OurStruggle. These communicate to others that this exhibition is in fact about the anti-apartheid struggle and inform us that Candice feels attached to this, "*our*," struggle, being herself South African. Then there is the tag #ReginaMundi, which made it possible in the first place for me to

find, to *trace*, the snapshot.[1] It relates this snapshot to other snapshots by visitors to the site. This relation is enabled by quite a complex material actor, or rather, an actor-*network*: Candice, together with her smartphone, its screen, the Instagram app, an Internet connection, the frame she holds – and of course the person who took the photo of her, are all related in this image-cum-post (see also Callon & Law 1997).

What else is happening here? What can we see *in* her photograph? The walls behind Candice are tagged with little notes. Visitors have left their thoughts and feelings on the walls next to the exhibited photographs and next to other notes. And isn't that frame that she's holding supposed to hang on the wall, like others in the background? Yes, but for some reason, it keeps falling off, as I learned from following other images taken at the same site. I visited the church in 2012 during some of the rare periods when it remained in place, and I remember a weird bandage that was attached to it. The fact that the frame is sometimes detached from its destined spot on the wall motivates visitors to engage with it, for instance to take a photo of or with it, or to write a note on the walls that comments on how the frame fell down. When the frame is put back up, the note about its past travels remains (see Wiegand 2017, 236-8). These walls record an immense number of stories – more than just the story of Soweto, as the name of the exhibition would suggest. They attract very different visitors, who engage with the comments in different ways, with many choosing to preserve a memory of them in a photograph. The traceable tourist photograph itself then becomes an actor of memory, of *mediated* memory. The snapshot carries a mediation of memory in two ways. On the one hand, it is the tourist's memory of the travel experience which is mediated through the photograph, on the other hand, a snapshot of an object of memory – such as a photograph in an exhibition – further mediates the memory communicated in the original image.

People increasingly make public digitalized recordings of their encounters with a site of memory, an exhibition, or a photograph exhibited at a site. This makes both the individual work of memory and the associations of objects of memory like a tourist snapshot, increasingly *traceable* – as Bruno Latour notes in the following quote about readers' reactions to novels:

> Apart from the number of copies sold and the number and length of reviews published, a book in the past left few traces. Once in the hands of their owners, what happened to the characters remained a private affair. If readers swapped impressions and stories about them, no one else knew about it. The situation is entirely different with the digitalisation of the entertainment industry: characters leave behind a range of data. In other words, the scale to draw is not one going from the virtual to the real, but a scale of increasing traceability. (Latour 2007)

Just like the reading traces of novels and their characters, the reactions to sites of memory and the memory media staged there become increasingly traceable. Snapshots of memorial sites are able to make new connections and literally distribute pasts and memories attached to them further. The memory work is not limited to the human capacity of remembering; it also emerges in entanglements of both human and nonhuman networks. Paraphrasing Ariella Azoulay's "event of photography," the resulting event of the visual, when visitors encounter sites of memory with their cameras, is "made up of an infinite series of encounters" (Azoulay 2011, 77), "a special form of encounter between participants where none of them possess a sovereign status" (70). The visual results from the collective effort of people, practices, technologies, places, pictures and objects. Entangled with cultural memory – the public reworking of (exteriorized) memories of the past in still new memories – it relies on mediation. Here, "mediation" as used by Latour is understood, on the one hand, as the ways that actors *translate*, even manipulate, a certain event, account or story, and, on the other hand, or even at the same time, how a photograph acts in an exhibition to communicate and further mediate the memory of the anti-apartheid struggle. Mediation describes how this memory is translated into new materials that in turn become actors on their own, like the comments that visitors leave on the walls of the Soweto exhibition and the snapshots of these comments that are published in an online travel forum, individual blog or social media account. The particular interest of these mediating interventions in cultural memory work is when we see them turning from performances to having competence (Latour 2014, 51). The exhibited photographs, the scribbled

walls around them, and the stories they work out obviously *afford* certain actions: Mediating memory therefore seems to be one of the competencies of this exhibition setup. It is reflected in tourist snapshots. I call these competent snapshot actors *appropriations*: the materialized, sharable, and creative outcomes of visitors' encounters with a memorial site (Wiegand 2015, 31ff). The photograph as actor of cultural memory can be read as a visual mnemonic network. The 'cultural' in memory refers to the many actors involved in mediations: It is the outcome of participating and sharing, of collective composition.

ANT and the Study of Visual Material

The visual is both medium and technique of memory. Visual figurations and the realm of the visual itself work both as important intermediaries that transport views, and as crucial mediators that transform the stuff of memory, thereby maintaining it. Visual acts of memory are entangled, relational, and traceable, *transvisual*, forming a network of visual associations across a visual culture, enmeshed with visual practices (see Wiegand 2015, 15ff). Image work– especially with images that do not act as references or mere visualizations of research – has not been central to the work of actor-network theorists. ANT might also not be the most suitable method to engage with the visual. But it leads us away from 'image work or object work only' towards the composition of the visual as medium, technique, practice, and technology.

Visual anthropologist Sarah Pink argued in 2003 for a more collaborative approach to visual research (186). Most research that prominently engages with images (like art history and study of visual cultures) in some way still focuses on the researcher's interpretation of the image and its social or cultural (often semiotic and discursive) implications, without engaging with 'the people,' those who meet and read images in different ways – anthropology's main concern. While I fully support this observation, I wish to invert the argument for a moment – admittedly thus risking oversimplification. By investigating only the social practices by means of which photographs are produced, viewed, distributed, and shared, the visual materials' "content" – the visible participants *in* the image and the connections they make across visual culture – are often disdained or at least not fully fathomed. Methodologies and theoreti-

cal frameworks that help us to creatively balance between the two focuses are needed to confront the bias of individual disciplines and to unite research of the visual. We cannot forget the people (and other nonhuman actors) that join in photography and image-making, but we must also look closely at the image, as object and story, and take it serious as an actor – and a network – on its own. Building on this observation, I have been considering Ariella Azoulay's understanding of the event of photography and the photograph as platform. Azoulay takes the image itself as an operating space, a space to intervene in, so that the encounter with a concrete photographic image becomes a forum to (net)work. She writes (2011, 76):

> The photograph is a platform upon which traces from the encounter between those present in the situation of photography are inscribed (…). Many of these traces are neither planned nor are they the result of an act of will. That which is seen, the referent of the photograph in other words, is never a given but needs to be constituted to precisely the same degree as the interpretations which have become attached to it.

The "event of photography," to deploy Azoulay's concept, is a mutual enactment of apparatus, photographer, and photographed scene (and all the actors present and performing in that scene, from buildings, things and other people down to the weather conditions, and of course the light conditions). I understand the tourist snapshot as the outcome of associations made between these actors. ANT proves helpful as a tool to disentangle the composition of snapshots involved in mundane memory work of visitors to a site. There are three premises derived from actor-network methodology which I consider particularly suitable for the study of the photograph's work in cultural memory today: entanglement, relationality, and traceability. I take my clues mainly from Latour but further develop all three concepts and methodological tools for the study of the visual in cultural memory.

Entanglement

In its focus on the entanglement of the human and the nonhuman in meaningful action, ANT has a non-anthropocentric agenda.

Latour underlines the premise of symmetry, the symmetrical agency of objects and subjects, of humans and nonhumans. This symmetry essentially makes any dichotomization between the two impossible because they are already entangled (see also Hodder 2012). All actions are "an exchange of human and nonhuman properties inside a corporate body" (Latour 1994, 46); as such, the tourist snapshot is an outcome of the exchange of photographer, photographed scene, participants in the image, and future viewers encountering the photograph. The 'stuff' of memory is constantly set in motion by a range of actors – people, accounts, or technologies, as the disentangling of Candice's Instagram snapshot illustrates.

Relationality

An ANT study focuses on relations and associations, on how different actors work together in actor-networks. It implies observing how actors become tied (or untied) so that they enable and compose an action in a certain place at a particular moment, and which other actions are needed (or happen simultaneously) to make that particular actor act and the network function: What relations or associations does an actor build, how do actors socialize? This calls for a relational analysis of the photograph underlining its "compound realities." It is "the product of a process of composition" (Callon & Law 1997, 170). Latour underlines this claim when writing that every action, also the taking of, getting ready or posing for, or the looking at a photograph, should be felt "as a node, a knot, and a conglomerate of many surprising sets of agencies that have to be slowly disentangled" (2005, 44). With regard to the task of disentangling visual materials and their inherent relations, the almost forensic interest we should bring to snapshots as cultural memory points to the third premise: traceability.

Traceability

ANT works through tracing – following actors back and forth between the relations they make and the actions they are involved in via the traces they leave. Latour writes that "ANT is not about traced networks but about a network tracing activity. (…) No net exists independently of the very act of tracing it, and no tracing is done by an actor exterior to the net. A network is not a thing, but the recorded movement of a thing" (1996, 378). This implicitly makes

the researcher in my study part of the network of cultural memory that the exhibition space of *The Story of Soweto* enables and describes. The act of tracing implies watching how the actors zoom in and out of their actions. To trace also means to actively look for associations without postulating them in advance. When I think about the (after)life of a photographic image of an encounter with a memorial site, for example, my task is to map the relations and constellations that brought this photograph into existence, the connections the photograph makes while circulating. Thirdly – and this goes beyond the aim of a strict ANT study – we can trace the scene of associations that an entity *lists and shows*, not only the shaping of memory but also its 'shape.' As we already saw in Candice's post, a snapshot of the scribbled walls in the Regina Mundi Church *traces*: i.e., it lists a range of participants as its visual actors. The shape and 'content' of the record is not of primary interest to ANT. Nevertheless, this specific shape is crucial in my analysis because it allows us to trace the work of cultural memory on yet another level of creative appropriation.

The following practiced relational reading transfers the traceability of accounts from the digital photograph and source to the site that it mediates and returns them to its mediator, the digital snapshot. The tourist snapshot is a brilliant example of how cultural memory functions, not least because it makes the memories communicated at tourist sights "migrate" (Baylis 2008, 4).

Zooming in and out of Snapshots: Relating Statements

This snapshot by South African journalist Chris Roper, published on his former blog and tweeted on 5 June 2011, illustrates the composition of traces at Regina Mundi Church: first, it shows us one of the exhibition walls with all the comments. Second, as a photograph, it inscribes a particular situational and personal view of the exhibition walls online.

Roper's "Graffiti" snapshot focuses on a comment by Mpho Scheeper, whose name suggests a local South African, who wrote on 23 June (no year specified): "Expresive Exposition. It could could not have told better. Deeply moving story of the struggle of the Azanian people. Mpho Scheeper 23/06". Mpho Scheeper's comment has been corrected (probably by himself) by crossing out the redundant "could." Interestingly, he uses the term 'Azania' and not

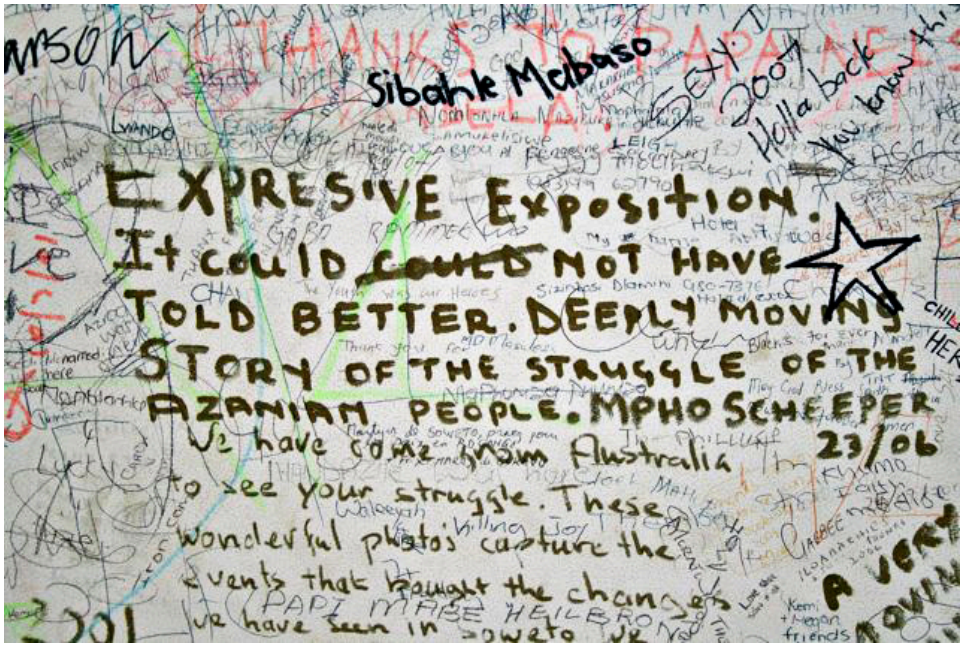

Fig. 2: Chris Roper, "Graffiti," June 5, 2011.

South Africa or the colloquial Mzansi. Azania is an ancient toponym that refers to areas in Sub-Saharan Africa that in this context was most likely used to evoke a Black-ruled (South) Africa. Scheeper's term figures prominently in philosophical and political pan-African anticolonial liberation movements like the Panafricanist Congress of Azania and its armed wing, the Azanian People's Liberation Army, founded in 1959/60 in Southern Africa. Roper's snapshot thereby also imparts knowledge about this important emancipatory term and ignites interest in the empowering history of Black South Africans' struggle by literally giving Azania its own independent framed image: this snapshot.

Just below Mpho's statement are parts of a comment from Australians: "We have come from Australia to see your struggle. These wonderful photos capture the events that brought the changes we have seen in Soweto (…)". In between these bigger comments written with markers we find shorter ones like "the youth was our heroes" and "blacks for ever," alongside a range of South African nametags like "PAPI MABE HEILBRON" (a town in Free State, South Africa) or "Sibahle Mabaso." People from different places

with different insights about this Soweto site enter a dialogue on these walls for future visitors to join in.

Judging from the name given to the published snapshot, the photographer was attracted by a specific recognizable shape in an unusual place: he zooms in on (what looks like) 'graffiti' in a church, meaning that this is a rather untypical shot of a memorial (tourist) sight. What made Roper focus on that particular comment could be the straightforward and at the same time political statement and Mpho's slightly unconventional orthography, which is indeed eye-catching. People in general seem to be very attracted by individual comments on the wall and such photos make up the greater number of snapshots taken at *The Story of Soweto*.

The relationality of inscriptions and the actions we draw from them is one of surprises; The story told in the graffiti changes with our point of entry into the wall or via snapshot's frame. The snapshots help me to decipher the comments on the walls –from the lower left corner of the wall in the snapshot to the upper right corner and back again – to see what and who has been involved in the visible layering of these walls. The size and frame make the difference: at first, a small photograph (which, in terms of its resolution, is at the same time large) seems to offer a more compressed way of entering the stories told on the wall than the wall itself. Visitors' snapshots condense what is happening (what is at 'work') here for me (and for others) while also showing what interested the photographer, and, accordingly, what made up the event of the photograph (Azoulay): they put the scribbles, images, and visitors to the site into relation with the viewers of the snapshot.

Conclusion

When we start to disentangle objects of cultural memory like the snapshot, we realize that a snapshot is neither simply a material image, nor is it merely what can be seen 'in' it; instead, it gathers all the acts and technologies that created it, alongside everything that was invisible at the time the photograph was taken, becoming visible when we later zoom in on it. We can even trace marginalized stories that are barely known on a global scale, like Mpho's story about Azania. The photograph is the manifested associations made between these actors, a Latourian actor-network. Furthermore, it culminates as inscription: it leaves a view of this net-work for oth-

ers to engage with it, adding to a visual cultural memory in an "infinite series of encounters" with the photograph (Azoulay 2011, 77). Visitors' mundane photographic memories project the photographs and scribbled walls beyond the exhibition space, becoming proper agents, *mediators*, of memory themselves. Recalling Ariella Azoulay's main claim (ibid), "the event of photography is never over. It can only be suspended, caught in the anticipation of the next encounter that will allow for its actualization".

References

Azoulay, Ariella. 2011. "Photography." Mafte'akh, no. 2e:65-80.

Azoulay, Ariella. 2012. *Civil Imagination: A Political Ontology*, trans. Louise Bethlehem. London and New York: Verso.

Baylis, Gail. 2008. "REMEDIATIONS. Or, When is a Boring Photograph not a Boring Photograph?" Photographies 1, no. 1:29-48.

Callon, Michel, and John Law. 1997. "After the Individual in Society: Lessons on Collectivity from Science, Technology and Society." *Canadian Journal of Sociology* 22, no. 2:165-182.

Crawford, Cassandra S. 2005. "Actor Network Theory." *Encyclopedia of Social Theory* (Vol. II), Ed. George Ritzer. Thousand Oaks: Sage, 2005, 1-3.

Edwards, Elizabeth and Janice Hart. 2004. *Photographs Objects Histories: On the Materiality of Images*. London: Routledge.

Hodder, Ian. 2012. *Entangled: An Archaeology of the Relationships between Humans and Things*. Malden, Mass.: John Wiley & Sons.

Jóhannesson, Gunnar Thór, Carina Ren, and René van der Duim. 2012. *Actor-Network Theory and Tourism: Ordering, Materiality, and Multiplicity*. New York: Routledge.

Latour, Bruno. 1994. "On Technical Mediation - Philosophy, Sociology, Genealogy." *Common Knowledge* 3, no. 2: 29-64.

——. 1991. "Technology is Society made Durable." In John Law (ed.) *Sociology of Monsters: Essays on Power, Technology and Domination*. London: Routledge, 103-132. Online: www.bruno-latour.fr/sites/default/files/46-TECHNOLOGY-DURABLE-GBpdf.pdf (last accessed 9 August 2016).

——. 2005. *Reassembling the Social. An Introduction to Actor-Network-Theory*, Oxford: Oxford UP.

——. "Beware, Your Imagination leaves Digital Traces." *Times Higher Literary Supplement* (6 April 2007). Online: bruno-latour.fr/sites/default/files/P-129-THES-GB.pdf (last accessed 19 September 2015).

——. 1996. "On Actor-Network Theory. A Few Clarifications" Soziale Welt 47, no. 4:369-381.

Mitchell, W.J.T. 2005. *What do Pictures Want? The Lives and Loves of Images*, Chicago and London: The University of Chicago Press.

Pink, Sarah. 2003. "Interdisciplinary Agendas in Visual Research: Re-Situating Visual Anthropology." *Visual Studies* 18, no. 2:179-192.

Sturken, Marita, Lisa Cartwright (eds.). 2001. *Practices of Looking. An Introduction to Visual Culture*. Oxford: Oxford UP.

Van Dijck, Jose. 2013. *The Culture of Connectivity. A Critical History of Social Media* (Oxford: Oxford University Press.

Wiegand, Frauke. 2015. *Tracing Cultural Memory. Holiday Snapshots at Sites of Memory in an Actor-Network Perspective*. PhD thesis, University of Copenhagen, November. (http://artsandculturalstudies.ku.dk/staff/?pure=en%2Fpublications%2Ftracing-cultural-memory(58b1032e-8067-42d5-b628-3ef053c1a601).html).

Wiegand, Frauke. 2017. "The Agency of Memory Objects: Tracing Memories of Soweto at Regina Mundi Church." in Lucy Bond, Stef Craps, and Pieter Vermeulen (eds.), *Memory Unbound: Tracing the Dynamics of Memory Studies*. London: Berghahn, 221-241.

Note

1 This article is based on fieldwork at various South African sites of memory in June/July 2012 as part of my PhD project in the research program 'The Poetics of Cultural Memory', financed by the Danish Council for Independent Research (FKK) and the PhD School at the Faculty of Humanities, University of Copenhagen. The article is a shortened and developed version of Chapter II of my PhD thesis (Wiegand 2015).

akademisk kvarter
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Volume 15. Autum 2017 • on the web

"Here comes my son!"

On the underlying invisible work and infrastructure of a telepresence robot in a Danish nursing home

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Abstract

The article uncovers the formation of an infrastructure made to facilitate the implementation of a telepresence robot in a Danish nursing home. Ethnographic fieldwork data illuminates how myriad of human and non-human actors, such as supporters, Wi-Fi networks, care workers and cameras, work together as a hybrid, socio-technical collective. This collective constantly coordinates and improvises in a joint effort to construct, maintain and stabilise the flexible infrastructure, which facilitates the implementation of the new communication technology in the daily routines of staff and residents at the nursing home. The main argument of the article is that implementation of new technology is dependent on large amounts of work on the part of both of human and technical actors. Much of this work is normally invisible to and lack acknowledgment by decision makers. Thus, the article argues that a focus on infrastructure proves crucial in the uncovering of otherwise invisible work processes.

Keywords welfare technology, telepresence robots, implementation, infrastructure, invisible work

Introduction

In recent years, politicians have brought an increased focus on digitalisation and welfare technologies in the Danish public sector. Concurrently, investments have been made to introduce welfare technologies as part of the existing welfare services (The Danish Government 2011, The Danish Government et al. 2013, KL 2014). In particular, the domains of health and elderly care have been highlighted as areas that would benefit from implementation of more welfare technology (The Danish Government 2011, 49). Often, politicians argue that new technologies will help older citizens become more independent which will thereby improve their quality of life. Furthermore, it is argued that influx of welfare technology will mitigate labour shortage in the care sector (The Ministry for Social Affairs & KL 2010: 5). One of the explanations for the latter is that welfare technology is expected to streamline the ways in which tasks are performed, which would reduce man hours. Therefore, investments in new technologies are portrayed as a potential method for coping with the "elderly dependency ratio" in a future scenario where Denmark has fewer workers in the elderly care sector.

The Danish concept of welfare technology is related to the English term *assistive technology* (ATiA 2016), which encompasses rehabilitation technologies and assistive devices aimed at people with function impairments such as handicaps. In Denmark, welfare technology is strongly linked to the public welfare system and social and health services. Thus, welfare technology is aimed at people with addictions, older people, and other citizens with functional impairments who receive welfare services. A distinction is made between two types of welfare technology. The first type performs practical functions in e.g. nursing homes. An example of this type of welfare technology is robot vacuum cleaners, i.e. a technology that relieve citizens or employees of physical, routine tasks. The second type of welfare technology is information or communication technology such as intercom systems, surveillance cameras and GPS tracking devices, which relay information or allow people to communicate. In this article, we focus on an example of the sec-

ond type; a communication technology in the form of a so-called telepresence robot that the manufacturer named "Beam".

The article investigates how a municipal welfare technology trial project plays out at Solbjerg Local Centre on the outskirts of Aarhus, Denmark. The municipality wanted to implement Beam based on the idea that it would facilitate conversations between nursing home residents and their families; thereby making residents less lonely.

The central analytical perspective in our analysis of Beam is inspired by Geoffrey C. Bowker & Susan Leigh Star's (1991) concept of *infrastructure*, which, with its updated version of the concept of network, emphasises the coordination work that is required in order to implement new technology. The article's data material shows that the implementation of this communication technology requires the formation of an infrastructure made up of networks of socio-material elements such as Wi-Fi connections, webcams, care workers, mobile telephones, relatives and support staff. Together, these elements constitute a working, hybrid collective (Law & Callon 1997) that carries out a range of crucial micro-processes that may be visible or (initially) invisible. This hybrid collective continually coordinates and adapts itself to suit new practices while new supporting actors and functions are added to the network to facilitate the implementation.

Infrastructure and invisible work

The published literature on Human Computer Interaction (HCI) includes several articles on telepresence robots aimed at older users. However, these articles are mainly concerned with robots in private homes of older people and focus on evaluating and testing this technology in practice (see for example Boissy et al. 2007, Moyle et al. 2014; Sumioka et al. 2014 and Kristoffersen et al. 2011). Thus, the HCI literature consists primarily of feasibility studies; i.e. quantitative studies of whether the technology is successful in the tasks for which it is intended, based on predetermined parameters. This article positions itself within the interdisciplinary field of Science, Technology & Society Studies (STS), in which technology studies is pivotal. The classic STS technology studies describe how technological artefacts are constructed as hybrids between the social and the technical (see for example Latour 1987, 1996; Law 1989; Bijker 1997). One recurring theme is the (mis)match that often arises between a

technology developer's ideas about the practice, into which the technology will be integrated, and the actual situation (see for example Akrich 1992). Therefore, this article points out the importance of not only studying the development of technologies but also their implementation in practice. A recent study discusses the care robot 'Alice', that is tested as a conversational partner amongst older people, who live alone, with the purpose of preventing loneliness. The study supports how micro-processes involved in the implementation is key to the understanding of technology-in-practice and how care and technology are not necessarily opposites, but gets entangled in all sorts of ways in practice (Schwennesen 2016).

The key analytical concept in this article, infrastructure, is inspired by the technology approach in STS, as well as perspectives from symbolic interactionism. In symbolic interactionism, the emphasis is on how actors act and interact with other actors and objects, and particular attention is paid to the work that the actors invest in specific situations. Focusing on the extensive work that is required for situations and practices to unfold and function brings about an analytical sensitivity to the (often unseen) extra work that actors undertake in order to make a specific situation succeed. Furthermore, the classifications and standards that support practices become more readily apparent. Infrastructures are thus relational, hybrid networks, which act as facilitating systems that enable things (i.e. technologies) and practices to function. At the same time, infrastructure can be a challenge or a barrier and always requires constant maintenance. Infrastructure should not be understood as merely a substrate upon which something else functions, such as a road network or water pipes, but rather as an active, relational network, which requires on-going investments and coordination of work (Star & Ruhleder 1994, Star 1999).

In our analysis of the implementation of Beam, we see it as part of a larger socio-technical, infrastructural network made up of the relationships between human and non-human actors such as suppliers, software, nursing home residents, care workers, supporters, spare parts, cleaning staff and instructions. The analysis describes how technological and social actors continually coordinate and undertake adaptations to enable the technology to function within the daily life of the nursing home. In order for Beam to be implemented and have value for the residents, families and staff at the nursing

home, the socio-technical actors must work together to create an infrastructure that facilitates its function and embedding in the local work routines and everyday practices.

Method

Our analysis draws upon empirical material generated through fieldwork at several nursing homes in Aarhus Municipality for one of the authors' Master's thesis. In this article, we focus primarily on one participant observation, a usage situation involving a female nursing home resident and her son, in which the telepresence robot Beam was used as a communication tool. The participant observation was coordinated by the nursing home's welfare technology instructor, who was also present. It took place in a common area, an employee's office, and in the citizen's apartment at the nursing home. The observation was documented using the American anthropologist Clifford Geertz' classic concept of ethnography as a 'thick description' (Geertz 1973). According to Geertz, a thick description of a situation is a highly detailed description which includes factual circumstances and captures and interprets symbolic nuances as well as reflexive commentary - both from the ethnographer and the other participants in the situation.

Thus, in the observation of a specific usage situation with Beam, the observer made comprehensive field notes, laden with as much meaning as possible. These field notes provide a detailed basis for mapping the numerous micro-processes that occur on the robot's journey from its base in the docking station to the female resident's apartment, where the conversation takes place. Along with the observation itself, this article also draws upon interviews with the welfare technology instructor and the resident's son. The informants are anonymous but for readability we call the resident Edith, her son Hans, and the instructor Gitte.

The following analysis is structured chronologically; i.e. we follow the entire process of the conversation from Hans' call, to transporting the robot to the Edith's apartment, and the conversation itself. First, we briefly introduce the telepresence robot and the communication welfare technology trial project of which its presence at the nursing home was a part.

Beam's socio-technical arrangement

In January 2015, Solbjerg Local Centre received the telepresence robot Beam as part of the municipal trial project *Telebesøgsvenner* (*Telecompanions)* (Aarhus Municipality 2015). The project was launched by the municipality with the aim of investigating whether this communication technology could increase the amount of contact between residents and their loved ones. Furthermore, the care staff expressed hope that increased contact would reduce loneliness amongst residents. Beam was placed on the first floor of the nursing home and was solely used by residents on that floor. When the robot was not in use, it was placed in a docking station located in one of the centre's corridors (see image 1). The relatives who were set up as users could call the robot to speak with the residents and the staff at the nursing home.

Photo by Marie Anna Svendsen

Courtesy of Penton Design, Engineering and Sourcing Group

Telepresence robots like Beam are commonly known as 'Skype on wheels' as they are a technology for video communication reminiscent of the popular IP telephone service. However, in contrast to Skype, telepresence robots allow an external user (pilot) to navigate the robot in a remote environment (the nursing home) and interact with the people there. The videophone technology, which is called mobile robotic telepresence (MPR) connects two or more callers, who can see each other on their screens. Beam is also different to Skype, where the two callers use the same computer program to communicate, as it is only the 'pilot' (i.e. the user located outside of

the nursing home) who interacts with the computer program Beam App via a user interface (see image 2). Beam App can be installed on the pilot's computer, which must be connected to the internet. Using the program, the pilot can guide the robot around the nursing home with the help of two video feeds. The pilot steers the robot with his/her computer mouse or arrow keys. Beam is a box mounted on two wheels, which is linked to two legs upon which a screen with a camera lens is positioned. The pilot can turn the cameras that send the two video feeds if he/she wants to see something out of range. From the local user's perspective, there is no user interface to operate. Since the robot is connected to the nursing home's wireless network, the pilot is connected immediately and can interact directly with people in the nursing home without anyone having to answer the call.

Arranging the call: the importance of support work

> Gitte has arranged with Edith and Hans that Hans will call Beam at 2pm. First, Gitte finds Hans' phone number under Edith's profile on the desktop computer. She calls Hans to confirm our agreement and tells him that I am with her today. Gitte hangs up and tell me that Hans will call Beam in a moment. We walk from Gitte's office to the corridor where Beam is located in its docking station. We are looking at the robot for a while and talk about how we hope that it will work today. There were some problems due to a software update the week before, Gitte tells me. However, Blue Ocean, the company that provides support services for Beam, quickly sent someone to the nursing home to replace a spare part. It is supposed to be working again now. Shortly after Hans' face appears on the screen. He is a middle-aged, friendly looking man with grey hair. It looks like he is sitting in an office at home, which I am told is not far from the nursing home. Hans says hello, and Gitte responds (Excerpt from field notes, November 2015).

Hans' sudden appearance on the screen, brings life to the otherwise 'dead' robot. This is possible because of a vast amount of work hid-

den behind the scenes, which only becomes visible when a problem arises, and support is summoned. Invisible work, such as the on-going support in this case, maintains the infrastructure that is required for a technology like Beam to function within the everyday practice of the nursing home.

The infrastructure and accompanying support work consist of numerous actors and sub-processes, which unfold both before and after implementation of the robot. One example of this is installation of the wireless network to which Beam connects in order to send and receive information such as the video feed, sound, and navigation between the robot and the pilot's computer. Practical knowledge is required about where to place routers, how to connect wires as well as technical knowledge about bandwidth and range. The nursing staff does not possess this knowledge. The supplier and support provider for Beam in Denmark is Blue Ocean, a company based in Odense while the developers of the communication technology are an American company called Suitable Technologies. However, it is crucial that the company responsible for supporting Beam is based in Denmark, because maintenance of the robot involves repairing or replacing parts and thus requires the physical presence of a technician.

Gitte described the working relationship with Blue Ocean as positive and unproblematic. She explained that Blue Ocean's technicians had quickly repaired the robot when it was out of service the week before the observation. She also said that she often received emails if the supporters noticed that the robot was offline because it had not been correctly placed in the docking station to recharge and had run out of battery. This rapid and on-going support is crucial when it comes to maintaining the relatives' and residents' enjoyment of and trust in the service provided by the robot. Support work located behind the scenes may seem trivial, but it is decisive to the success of the technology implementation. If the support element of the infrastructure does not work, the users' experience of the technology will be completely altered.

The description above also provides an insight into the number of different technical and human actors that are involved in Beam's infrastructure. Beam can only function if a relative has his/her own computer with Beam App installed, a stable internet connection, a webcam (preferably HD), a microphone, and a computer mouse or

mouse pad. Besides the aforementioned support worker, the human actors are Gitte, who, in her role as welfare technology instructor, orchestrates contact between the various users, i.e. Hans, a relative and external user and Edith, a resident and local user. Thus, an additional component of the infrastructure, that enables Beam to function in practice, is a heterogeneous network of actors, internal relationships, and an on-going allocation and distribution of tasks.

From the docking station to the resident's apartment: ad hoc adaptations and technological goodwill

> Gitte suggests that we – Hans with Beam, Gitte and I – move down to Edith's apartment, situated at the other end of the nursing home. Edith lives in apartment 26, Hans says. Hans leads the way with Beam, rolling slowly down the corridor. Gitte and I follow. Gitte has told me that Hans is able to steer Beam using the arrow keys on his computer keyboard. On the way, Hans notices a problem with the robot. It suddenly stops and will no longer move forwards. It is something to do with the network connection. Gitte asks Hans whether the image on his screen is clear. Hans responds by saying that the image is sometimes unclear and that there are large squares on it like on a digital television. He explains that the connection is often poor in the part of the nursing home where Edith lives. (Excerpt from field notes, November 2015).

As described, the infrastructure only tends to become apparent when it suddenly fails to function optimally. The problem in this case is failure of the network connection, which prevents Beam from moving on its way to Edith's apartment. This means that we have to stop and wait for the robot to work again, and interaction between Hans and the rest of us suddenly seems unnatural and awkward. We are no longer able to interact with Hans as though he is actually with us in the room. Instead, we are now forced to focus on Beam as a communication technology that is not functioning optimally. A stable wi-fi connection is crucial to the image quality and the pilot's user experience of Beam. Depending on who is piloting the robot and the user's knowledge of the nursing home's lay-

out, this can be more or less significant. Hans explains that at times, the connection has been so bad that it would have been hard for him to orient himself in the corridors if he had not been so familiar with the surroundings of the building. However, since he knows the nursing home well, because he often visits his mother in person, he can live with the quality being less than optimal. It would be a different matter if a relative, who was not intimately familiar with the layout of the nursing home, were to try to navigate in the blurred landscape of pixels. Hans has put in a great deal of work into installing Beam App and learning how to steer Beam in order to use it to communicate with his mother. In addition to this, he has also carried out the 'work' of visiting the nursing home in person, which serves him well now that he has to navigate Beam through a pixelated landscape. These efforts of invisible work are significant to the practice that involves Beam. If Hans were unable to steer from the docking station to Edith's apartment by himself, he would have to seek help from the nursing home staff or give up entirely. In the interview with Hans, it emerges that he has a personal interest in Beam and therefore has a great amount of goodwill towards the technology. This means that he is willing to find solutions when problems with the robot arise. According to Gitte, this interest is uncommon for relatives of the nursing home residents. However, it has meant that Hans was able to learn how to operate the Beam App user interface with ease. Gitte explained how a relative of one of the other residents had found it very difficult to learn how to use the user interface of Beam App, and that Blue Ocean consequently had spent a long time training her. Indeed, such training may be necessary for relatives who are not used to using computer programs. As well as proving that Beam can be complicated to learn to operate, this also shows that an investment of time and goodwill is required of the actors involved if the technology is to be used in practice.

> On the way to Edith's apartment, we meet a female resident, whom Gitte greets. She asks, "Who do we have here?" "It's Hans, Edith's son," Gitte explains. "Aha, ok," the resident responds, seemingly familiar with the situation. Gitte and I have to open a double door into Edith's corridor so that Beam can enter. […] The door into num-

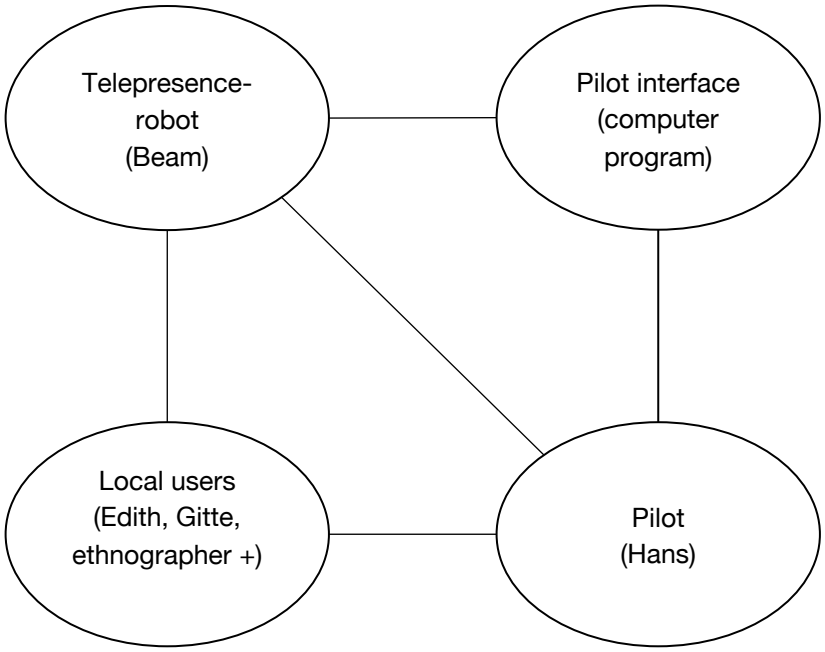
> ber 26 is open. One of the care assistants stands in the doorway. She tells us that Edith is in the bathroom. "Then I will wait a bit," says Hans. Edith comes out into the living room and says hello. Hans rolls into the apartment, and Gitte and I follow. Gitte explains to me how I should open the front door for Beam, when it has to roll out again. It is important that I press a button on the wall to keep the door open so that it has time to roll out. Afterwards, I have to press another button to close the door (Excerpt from field notes, November 2015).

Beam is not able to climb stairs or take the elevator and cannot open doors. This is a problem, both when Hans tries to enter Edith's corridor which has a closed double door, and when he tries to enter Edith's apartment. Since Edith finds it hard to make arrangements in advance due to her dementia and does not have a phone, it is impossible for her and Hans to plan when he will visit her with Beam. Therefore, the staff also become part of the infrastructure that supports Beam by opening the doors to the corridor and the apartment, pressing the button in Edith's apartment to keep her front door open while Beam is inside and, finally, helping Edith to shut the front door again when she is unable to remember how the automatic door works. Hans explains that he has to call the nursing home using his phone if he does not meet any of the staff on his way to Edith's apartment. Although it may not seem like a lot of effort to open a couple of doors, it does require the staff to be available on their cell phones and take their time to help out when they meet Beam in the nursing home corridors, even when they are on their way to help another resident. This is another example of invisible work, which must be carried out by someone, but is transient and dependent upon who happens to be in the corridor at a specific moment and upon agreements between Hans and the staff, and their understanding of the technology and its limitations. However, despite the transience of this aspect of the infrastructure's microprocesses, it is nonetheless crucial if the technology is to function as intended. Another prerequisite for the success of the conversation between Hans and Edith is that the care workers are supportive of the technology and willing to interrupt other tasks to assist with it.

In the description of the relatively short journey from the docking station to Edith's apartment, it is apparent that a successful implementation of the technology is both dependent upon a multitude of actors and functions and upon a number of ad-hoc adaptations during the usage situation. In addition to this, the relatives, residents and staff must have a certain degree of interest and goodwill if the technology is to be included in a meaningful practice.

The conversation: coordination between non-human and human actors

The figure below is a visual representation of the main human and non-human actors involved in the conversation that Beam facilitates as well as how they interact with each other.



The pilot, Hans, is presented as a physical manifestation via Beam. From his home, Hans is able to operate the user interface to navigate the robot around the nursing home. The local users can see and hear Hans via a video and audio feed, relayed from Hans' computer to Beam. Last but not least, Beam sends visual and audio information from the nursing home to Hans' computer.

Thus, successful communication between Hans and Edith requires the coordination of a number of technical sub-processes and collaborations between technology and people. Some of these sub-processes can be described as follows: Hans' computer and Beam must both be connected to the internet; Beam App must be installed on Hans' computer and have a functioning webcam; Hans must be able to operate Beam App's user interface in order to navigate Beam through the corridors of the nursing home without bumping into walls, furniture and people in the local environment; the human actors who are present in the nursing home must be able to see Hans on Beam's screen and hear his voice through the speakers, and they must then acknowledge Beam+Hans as a worthy conversational partner. All of these collaborative elements and relations make up an infrastructure that enables the conversation to take place.

> I greet Edith and we agree that I will sit on the sofa next to Edith's coffee table. Edith sits on the other side of the table on an armchair and Hans is positioned at the end of the table. I talk a bit about why I am here to see how Beam works today. Then Hans and Edith begin to talk to each other. The situation seems a little unfamiliar, and Edith asks whether there is anything in particular I want to see. I explain that Hans and Edith should just talk to each other as they usually do and that I want to see an everyday situation with Beam. It seems a bit awkward and unnatural that I am present, and the conversation between Hans and Edith is very short. Hans says that they sometimes talk for a longer time period. […]Then Hans navigates Beam out. I let him out of the apartment using the button on the automatic door opener that Gitte showed me. Subsequently, I ask Edith about Beam. She seems very confused when I say that Hans "calls her" via Beam. "But he doesn't call though," says Edith, "he just comes" (Excerpt from field notes, November 2015).

According to Hans, in the beginning it seemed foreign to Edith to talk to him via a robot, but in our brief interview, she seems to entirely ignore the technology and focus on the fact that it enables her

to talk to her son. In an interview, Hans talks about Edith's initial resistance to the robot:

> It worked so well once she got used to it. The first time she said "I don't want that rubbish in my room. Get that robot out of here."… I mean, she is very much, you know, a robot sounds threatening…but when she heard that it was me talking from the screen, then it was allowed to come in (Excerpt from an interview, November 2015).

When Edith hears her son's familiar voice, her fear and the feeling of having to interact with something foreign subside. Beam becomes a representation of a familiar person and, in this way, the technology is demystified and her resistance dissipates. In order to the fear of an unfamiliar technology can be overcome in this way, it is important that residents are given the opportunity to interact with the robot while piloted by a familiar person.

Gitte explained that, in an attempt to demystify Beam for both the staff and residents', the nursing home manager had used the robot every day during a stay in the Philippines. The manager used Beam to participate in meetings, conduct job interviews, and also drove it round the nursing home talking to residents. In this way, the technology was introduced by someone with whom the residents already had a relationship. The idea was that a concrete manifestation of the goodwill of the staff would rub off on the residents.

The empirical excerpts above show two significant aspects of the invisible coordination work of the infrastructure. The first is the extensive work carried out by relatives, care workers and supporters to ensure that the arrangement of technical and human actors can function as a collaborative, hybrid collective, and that the conversation is a success. Thus, the successful implementation of the new communication technology requires a comprehensive and flexible infrastructure. The second aspect of the invisible work is the investment of goodwill towards the technology functioning in practice. This is undertaken by the manager, for example, who takes advantage of the extraordinary situation of a trip to the Philippines to increase familiarity with and goodwill towards Beam among both staff and residents in the nursing home. Therefore, it is important to note that the human actors' goodwill and work efforts are crucial to

the success of the technology as a communication device. The technology only has worth when it is acknowledged as relevant by the human actors.

Conclusion

We have shown how the implementation of Beam takes place in a heterogeneous network of a (surprisingly) large number of human and non-human actors. Examples of these actors are care staff, municipal employees, internet connections, support staff, automatic doors and telephones. The actors in this heterogeneous network must coordinate and work together in order to create and maintain the infrastructure that enables the relatives and residents to use the robot as a relevant communication tool. The heterogeneous networks' collective work efforts consist of tasks both normally acknowledged as work, such as installing routers and establishing a wireless network in the nursing home, and more invisible work tasks such as being available to answer a telephone call or open doors for Beam so that it can reach the intended destination. Furthermore, it is important to acknowledge that the implementation is dependent on an infrastructure consisting of not only solid materials, but also goodwill and emotions. Beam is only able to demonstrate its value as a relevant welfare technology if it is possible to mobilise and stabilise an infrastructure in the already existing practices into which it is released. Thus, the article's detailed ethnographic descriptions provide insights into how the implementation of new technology involves large amounts of work, some of which is familiar and visible and some of which is more surprising and usually invisible. With our analysis of Beam, we emphasize how a focus on infrastructure illuminates the micro-processes, coordination and ad-hoc adaptations that are necessary when a new technology is implemented and adopted into everyday practices.

References

Akrich, Madeleine. 1992. The De-Scription of Technical Objects. In: Law, John & Bijker, Weibe E (Red.). *Shaping Technology/Building Society: Studies in Sociotechnical Change*. Cambridge, Massachusetts: The MIT Press.

Akrich, Madeleine & Latour, Bruno. 1992. A summary of a Convenient Vocabulary for the Semiotics of Human and Nonhuman Assemblies. In: Law, John & Bijker, Weibe E (Ed.). *Shaping Technology/Building Society: Studies in Sociotechnical Change*. Cambridge, Massachusetts: The MIT Press.

ATiA. 2016. *What Is Assistive Technology?* Accessed 5th August 2016: https://www.atia.org/at-resources/what-is-at/#what-is-assistive-technology

Aarhus Municipality. 2015.*Telebesøgsvenner* (Project description). Updated: 27.11.15: https://www.aarhus.dk/sitecore/content/Subsites/Velfaerdsteknologi/Home/Velfaerdsteknologi/Telebesoegsvenner.aspx?sc_lang=da

Bijker, Wibe E. 1997. *Of bicycles, bakelites, and bulbs: Towards a Theory of Sociotechnical Change*. Cambridge, Massachusetts: The MIT Press.

Boissy, Patrick et al. 2007. A qualitative study of in-home robotic telepresence for home care of community-living elderly subjects. In: *Journal of telemedicine and Telecare* 2007; 13: 79-84.

Bowker, Geoffrey C. & Star, Susan Leigh. 1991. *Sorting Things Out: Classification and Its Consequences*. Cambridge, Massachusetts: The MIT Press.

Geertz, Clifford. 1973. Thick Description: Toward an Interpretive. In: Geertz, Clifford. 1973. *The Interpretation of Cultures*. New York: Basic Books.

Kristoffersen, Annica; Coradeshi, Silvia; Severinson Eklundh; Kerstin & Loutfi, Amy (2011a). Sense of Presence in a Robotic Telepresence Domain. In: *Universal Access in Human-Computer Interaction.* Users Diversity. Part II, p. 479-487, 2011.

Latour, Bruno. 1987. *Science in action: How to follow scientists and engineers through society.* Cambridge, Massachusetts: Harvard University Press.

Latour, Bruno. 1996. *Aramis, or the love of technology.* Cambridge, Massachusetts: Harvard University Press.

Law, John & Callon, Michel. 1997. After the Individual in Society. Lessons on collectivity from science. In: *Canadian Journal of Sociology.* 1997. Vol. 22, Issue 2. Harvard University Press.

Law, John. 1989. Technology and the Heterogeneous Engineering. The Case of Portuguese Expansion. In: Bijker, Wiebe E. et al. 1989. *The Social Construction of Technological Systems: New Direc-*

tions in the Sociology and History of Technology. Cambridge, Massachusetts: The MIT Press

Moyle et al. 2014. Connecting the person with dementia and family: a feasibility study of a telepresence robot. In: *BMC Geriatrics 2014, 14:7.*

Regeringen. 2011. Et Danmark, der står sammen. Regeringen, 80. Accessed 21.11.15 at http://www.stm.dk/publikationer/Et_Danmark_der_staar_sammen_11/Regeringsgrundlag_okt_2011.pdf

Regeringen, KL & Danske Regioner. 2013. Digital Velfærd: En Lettere Hverdag. Fællesoffentlig Strategi for Digital Velfærd 2013-2020 (September 2013). Accessed 21.11.15 at: http://www.fm.dk/publikationer/2013/digital-velfaerd-_-en-lettere-hverdag/~/media/Publikationer/Imported/2013/Digital velfærd - en lettere hverdag/Digital velfærd_en lettere hverdag_web.pdf

Star, Susan Leigh. 1991. Power, technology and the phenomenology of conventions: on being allergic to onions. In: *A sociology of Monsters: Essays on Power, technology and domination*. Routledge.

Star, Susan Leigh & Ruhleder, Karen. 1994. Steps towards an ecology of infrastructure: complex problems in design and access for large-scale collaborative systems. In: *Proceedings of the 1994 ACM conference on Computer supported cooperative work*, p.253-264

Star, Susan Leigh & Strauss, Anselm.1999. Layers of silence, Arenas of Voice: The Ecology of Visible and Invisible Work. In: *Computer Supported Cooperative Work*. 8: 9-30, 1999. Kluwer Academic Publishers. Printed in the Netherlands.

Schwennesen, Nette. 2016. Et omsorgsfuldt (selv)bedrag? om brug af robotter der imiterer mennesker i ældreplejen. In*: Gerontologi. Årgang 32. Maj 16. Nr. 1.*

Sumioka, Hidenobu; Nishio Shuchi; Minato, Takashi; Yamazaki, Ryuji & Ishiguro, Hiroshi (2014). Minimal Design Approach for sonzai-kan Media: Investigation a Feeling of Human Presence. In: *Cognitive Computation*, 2014, Vol.6(4), p.760-774.

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Volume 15. Autum 2017 • on the web

Reconnection work

A network approach to households' dealing with ICT breakdowns

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Abstract

How can the concept of networks contribute to understanding the role of households in crises where ICT infrastructure fail? ICT infrastructures are large-scale techno-material networks crucial to modern human social organisation and living. They play a role in connecting individuals to households and individuals and households to their wider surroundings. Drawing on fieldwork from a recent crisis in Norway, this article uses actor-network theory (ANT) as an analytical lens. The aim is twofold; firstly to show the effect of an ICT infrastructure breakdown on the concerns of households as a socio-material network, and secondly to suggest how these networks reconnect and are stabilised at a household level through strategies where people mobilise actants such as cars and intact pieces of ICT to establish new temporal associations of actor-networks.

Keywords Socio-material networks, Actor-network theory, crises, ICT infrastructure, households

Introduction

In the evening of January 18th 2014, a fire arose in Lærdal, a small village (pop. 2100) situated at the mouth of a fjord valley in Western Norway. Due to strong wind gaining speed between the mountains and a dry winter season, the fire spread rapidly. It took some time before the national rescue teams arrived, and in the meantime, villagers engaged in the rescue of people and in attempts to reduce material damage. Then, the ICT base station exploded. This caused a major disruption in services for large areas of the valley, and left computers, TV's and discharged mobile phones inoperative (see also Heidenstrøm and Kvarnlöf 2017). The ICT services were not inoperative throughout all phases of the fire, rather they disappeared and reappeared at different times in different zones, and some technologies worked while others did not (Norwegian Directorate for Civil Protection 2014). Mobile base stations ensured partial mobile coverage after 40 hours, and some households had a fixed telephone line that continued to work throughout the event (NRK 20.01.2014). Internet access was generally unavailable for three days, but was also partially regained when Telenor provided mobile broadband units to their subscribers, and a local tele company offered mobile Internet coverage in a limited zone downtown (Sogn Avis 20.01.2014).

The *need to communicate* was high for the families directly affected inside the village. As the crisis reached national news, people outside the village also had concerns for family and friends in the area. The instability in the ICT networks made communication and co-ordination of action difficult and added to the feeling of uncertainty for the involved actors as they could not know what technology worked, for whom, and when. Hence, they had to find alternative ways to reconnect to the various networks of which they were part. In this article, we draw attention to how the *informal actors* – individuals belonging to households – engaged to solve their concerns when the ICT infrastructure broke down. In so doing, we apply concepts from Actor-network-theory (ANT) to shed light on the mobilising of both human and non-human actors as vital to this reconnection work.

Networks and actor-networks

Network as a concept has a number of meanings that cannot be taken for granted. We distinguish between three different types of networks as 'things' that can be empirically studied: (i) the *social networks* that exists between people in the village, (ii) *the techno-material networks* or infrastructures that ordinary life in the village depend on, and (iii) the combinations of these into *socio-material networks.* To approach an analysis of the latter, we apply the analytical term *actor-networks*, seeking to illuminate how socio-material networks were disrupted during the fire and how associations of actors and actants made re-establishments of the social possible.

Disaster research has attended to *social networks* as a key dimension of community resilience (Cheshire 2015, Johansson and Linnell 2012), turning focus towards informal actors as competent and active participants in managing disasters. Recent research also gives valuable insights into how *techno-material networks* such as ICT can be used to strengthen social networks, and in what ways information sharing and coordination of resources take place during and in the aftermath of disasters (e.g. Palen et al. 2007, Sutton, Palen, and Shklovski 2008, Wetzstein et al. 2014, Haataja, Hyvärinen, and Laajalahti 2014, Ewart and Dekker 2013). Disruption of ICT infrastructure hinders these strategies to be carried out, and requires actors to seek alternative ways to communicate (Sutton 2012). To study disruption, the notion of ICT infrastructure as *socio-material relationships* has been taken as a point of departure (e.g. Al-Akkad et al. 2013, Semaan and Mark 2011, Sheller 2016). Bringing socio-material networks into focus is important in several ways. The techno-material networks that enable information to move are ordinarily invisible, something we take for granted, yet something our daily lives are heavily dependent on (Larkin 2013). The obvious reason for this is that these infrastructures are never ends in themselves, but are always used for a purpose (Shove and Walker 2014). For instance, we use available ICT's because they are convenient when we want to send a message, talk to someone or find information. As we become accustomed to using techno-material networks, their materiality – e.g. wires, lines, servers, plugs, sockets, computers, phones – tend to fade into the background as something separate from us. Yet, they are not. Techno-material networks are fundamental for smooth societal functioning because they connect individu-

als and surroundings. This interdependency of social and techno-material networks points to a vulnerability important to reflect upon. The usefulness of looking into cases where otherwise embedded techno-material networks break down, is that they are moved from 'background' to become visible for the involved actors (Star 1999).

Thinking analytically in terms of *actor-networks* is one way of attending to the socio-material relationships around ICT infrastructures. In ANT, the term network is "a concept, not a thing out there. It is a tool to help describe something, not what is being described" (Latour 2005, 131). A basic assumption in ANT is that events are always the effect of relations between many actors in a network. For ANT, a network is always an actant-network: a sociotechnical/heterogeneous assembly constituted through continuous interactions between *actants* (human and non-human elements that accomplish or undergo an act). For establishing connections in an actor-network, actants have to be *translated* (changed) to fit. *Delegation* is one translation process where e.g. technology is used to translate a major effort into a lesser one, which in turn affects our actions (when we can make a phone call instead of visiting each other, and calling makes us visit each other less). To the extent something appears as pure or as a whole it is due to their actor-networks being *black-boxed* to take the form of a node in another network. A task for ANT driven research is to open up these black boxes to show the dynamics of the connections whereby material and semiotic actors are brought together in networks to act as a whole – how the social is assembled.

According to Guggenheim (2014), the ANT toolbox can be used to disassemble disasters to understand their underlying techno-scientific processes: what movement of actors produces these events and our understanding of them. Aligning human and non-human actors furthermore allows the materiality of disasters to come to the foreground, and to reveal the processes in which different types of actors work together (e.g. Matthewman 2012, Brewer, McVeigh, and Meding 2013, Wilford 2008). Only a few empirical studies have employed ANT to understand how ICT plays a part in disasters. Wang and Li (2016) and Guldåker (2009) uses it to illuminate how people engage in resilience work, giving a broad overview of various active actor-networks during crises and disasters. This article concentrates on the specific associations between

the ICT infrastructure and householders – an actor-network that often is black-boxed.

Drawing on examples from the Lærdal case, and by using conceptual tools from ANT, we examine: (i) How socio-material networks were disrupted during the ICT infrastructure breakdown, and (ii) How socio-material networks were reconnected through new temporal associations of actor-networks. By pointing to the instability created by the breakdown, we attend to how the 'work' to reconnect was enabled through the establishment of new connections between human and non-human actors. Our claim is that this example of an infrastructural breakdown seen through the ANT lens provide insights into the complex processes whereby resilience takes form as an effect of the extent to which destabilised socio-material networks are re-stabilised through new actor-networks (Boin and McConnell 2007, Byrd and Matthewman 2014, Perrow 2011).

Methods and data material

It is seldom possible to study a crisis as it takes place, thus studies of crises usually involve various methods to re-trace the event (Killian 2003, 53). In the case of the Lærdal fire, we applied a multi-methodological fieldwork.[1] This entailed four field visits with site-observations, interviews, and villagers 're-enacting' their actions at home, at work or in the village (Pink 2007).These were partially photo-documented and audio recorded. The interviews concentrated on performativity, e.g. how and with what resources a task such as contacting a family member was done (Hitchings 2012). The aim of the re-enactments was to get an impression of processes, techno-material surroundings and resources. We also collected and analysed media coverage, official reports and other secondary material. These techniques helped generate narratives of the event that could be linked to relevant physical surroundings and material objects. The analysis in this article is informed by the whole of this material, but will focus on the reconnection work done by nine households.

Table 1: Household characteristics

Household no.	Household characteristics
1	**Woman (55)***, Man (55), two adult sons not living at home. Detached house inside the evacuation zone. Mother and father at the cabin outside the village, drove home but were not allowed inside the village.
2	**Woman (48)**, **Man (52)**, **Daughter (17)**, **Son (25)**. Detached house inside the evacuation zone. The family was at home, except the father who was in the mountains.
3	**Woman (52)**, **Man (52)**, two teenage sons living at home, one daughter not living at home. Detached house inside the evacuation zone. The family except the daughter was at home.
4	**Man (45)**, **Woman (unknown age)**, son (10), infant daughter. Farm outside the evacuation zone. The whole family was at home.
5	**Man (69)**, **Woman (66)**, **son (30)**. Detached house outside the evacuation zone. The whole family was at home.
6	**Man (84)**, Woman (82). Detached house outside the evacuation zone. The couple was at home.
7	**Man (72)**, Woman (73). Detached house outside the evacuation zone. The couple was at home.
8	**Woman (17)**, living in an apartment with her mother inside the evacuation zone. **Woman (17)** from household 2 who is her friend were interviewed together with her.
9	**Man (72)**, Woman (70)**.** Detached house inside the evacuation zone. The family was at home together with their two daughters who live in the same street. The man did not evacuate together with his family, but stayed at home to extinguish the fire.

* Main interviewees in bold

We use households as the primary analytical unit. First, because the data shows that households operated as units throughout the fire. Second, because household members form social networks, and are part of techno-material networks that were affected by the disruption, and thus represents *resources* beyond the individual that were

essential to how the formation of new actor-networks could take place (Guldåker 2009, 73-77).

Disruption of socio-material networks

The Lærdal fire was set in motion by a chain of reactions; it started as an effect of electrical connections in a house, and spread to other buildings due to the wind and the shape of the valley. These events affected ICT services, although it varied in what way and for how long, and the villagers faced unpredictable telecommunication in a dramatic situation where communication was crucial. This temporarily destabilised the socio-material networks, made them more visible (Star 1999) and thus un-black-boxed them as actor-networks (Latour 2005).

For the affected households inside the village, the instability in the socio-material networks typically generated a new project: to ensure that all family members were safe, to come together, and to reconnect with those outside. For instance, in household 3, two teenage sons were at home with their parents when the fire broke out, and evacuated together. However, they had a daughter outside the village and once safe their priority was to inform her, but the ICT disruption made that impossible:

> We had been in touch with our daughter who was at a party in Bergen, but then we left our house and were not able to contact her again. We could not tell her that we were ok. She knew that her dad was outside packing, and then it became a bit scary right afterwards, they could not sleep and they got all the news all the time, but we were unable to get in touch. That was unpleasant; we had no mobile coverage, no Internet access.

Moreover, as this family had to leave their home, they lost access to its material and social resources, and could no longer use the home as a meeting place and communication base (Palen and Liu 2007). The evacuation increased the experienced severity of the event, along with the ICT disruption it hindered them from coordinating their actions, find and alert family and friends, and help other villagers.

The story makes visible the socio-technical assemblies that normally facilitated connections in the social network of this household when members were apart. It shows the efforts that have been delegated to ICT: Whereas the mobile phone under normal circumstances is used to translate a major effort into a lesser one, for the household members to re-establish connections and re-assemble the social during the ICT disruption, they had to translate other available actants to make them fit the altered actor-networks in this new situation. Below, we look into the householders efforts to reconnect and point to how this, given their established dependency on ICT, represented a translation from a minor to a major effort and thus the reverse of delegation.

Reconnection work

The strategies to re-establish contact between family members during the Lærdal fire required both time and materials, social and human resources. Table 2 below gives an overview of the reconnection strategies used by the nine households, and figure 1 depicts the two main strategies that the rest of the analysis will focus on.

Table 2: Reconnection strategies

Household no.	Reconnection strategies
1	The husband *used their car* to look for coverage in the *tunnel*, but was unable to regain coverage. The couple drove to friends to borrow a *fixed phone*. The wife had Internet at the hospital where she worked, and wrote an *email* to friends and family. She sent *imessages*, and got information through *face-to-face conversations*.
2	The wife was unable to contact her husband. She gathered friends and family at home before evacuation, but when evacuated they split up. The wife looked for coverage in the *tunnel* and nearby village. The husband *drove* to *contact points* the next day to find his family.
3	The family used their *fixed phone* before evacuation, and borrowed one from friends after. They looked for coverage in the *tunnel* to contact their daughter. When they were evacuated outside the village, they did not receive any more information.

Household no.	Reconnection strategies
4	The husband helped extinguish the fire, and was unable to contact his family until the next morning, but knew that they were safe at home outside the evacuation zone. He *drove* to a place where he knew he would get mobile coverage and contacted friends and family outside the village.
5	The ICT breakdown did not affect the family until the next day when the couple *drove* to look for coverage in the *tunnel* and nearby village. They used the local *radio* to receive information.
6	The husband used his *fixed phone* to call his family outside the village, and to connect it to an old *modem* to regain Internet access. The couple did not receive information from other sources.
7	The husband used a *walkie-talkie* to communicate. He could not use his fixed phone, and *drove* to the next village where he was able to regain mobile coverage. He listened to the local *radio* to receive information.
8	The family was evacuated to the hospital that had a power generator, Internet access and TV, and were visited by friends and family there. The daughter received *messages* and Snaps when the coverage returned.
9	The husband *hitchhiked* with friends to all meeting points to look for his family, and gathered information about them at each point. He received calls and *text messages* from friends and family when he regained coverage.

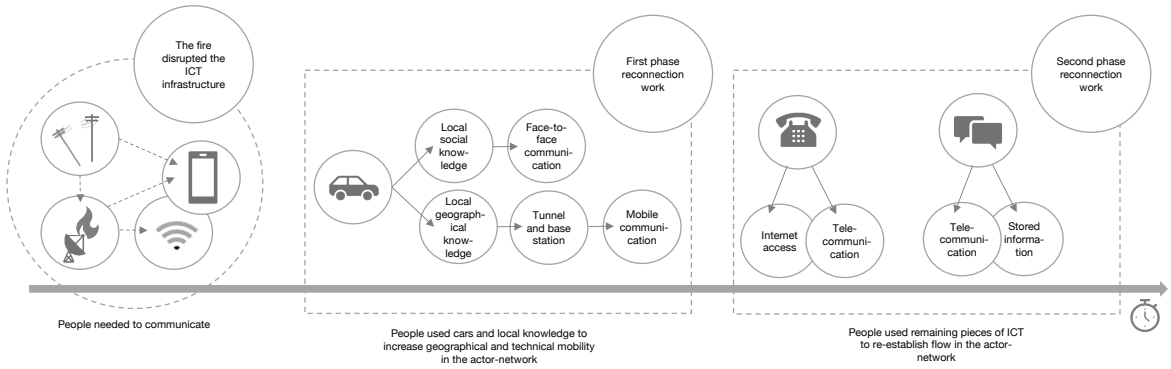

Figure 1: ICT infrastructure disruption and reconnections during and after the Lærdal fire

Using the ANT-toolbox, we describe two main reconnection strategies that worked to reconnect the households: (i) the use of cars to increase geographical and technical mobility, and (ii) the use of intact pieces of ICTs to re-establish flow in the infrastructure. These strategies show in what ways new actor-networks came into play when telecommunication was destabilised, in order to re-assemble to social of the households in during and in the aftermath of the fire.

First phase reconnection work: using cars to increase geographical and technical mobility

In the early stages of the fire, the affected families needed to establish contact with each other and other people inside the village. However, as mobile phones or Internet did not work, communication could only be re-established face-to-face. The story of household 9 illustrates how: The husband had stayed back in the village to help others extinguish the fire while his family evacuated. Later, he wanted to find them and make sure they were safe. This proved difficult as he had no information about their whereabouts and the phone did not work. He did have access to a car, but the keys were with his daughter who had evacuated. As he stood outside his house trying to figure out what to do, the fire chief drove by and offered him a lift to the main evacuation site. He did not find his family there, but met a villager who told him they were in another evacuation site. He then went out onto the main road, stopped a truck driver he knew, got a lift and finally found them there.

The car functions here as what Guldåker (2009, 142) calls a 'competent actant'. It replaces the mobile phone as an information and communication central in the actor-network and helps expand the communication range that was limited by the disruption. The example also portrays how the translations of new actors to make them fit in the actor-network involved an increased amount of work. The fire, the ICT outage and that he was separated from his family and without the car keys, altered the ordinary and stable socio-technological associations of everyday life and affected how the task of re-gaining contact could be completed. It required socio-material resources (getting access to a car, talking to people, stopping cars to get a lift) to accomplish reconnection, pointing to the complex intertwining of social and material networks.

However, the process of mobilising cars to communicate was also affected by the infrastructure disruption. For instance, when household 1 was evacuated the husband wanted to send a message to his parents outside Lærdal to tell them the family was safe. He had access to a car and planned to drive through the tunnel hoping there might be mobile coverage there. In need of diesel for the car, he went to the gas station only to find that the card terminal did not function. Thus, he had to drive back home to get cash before he could tank. Like ICT's, the car itself is an actor-network connected to other actor-networks, some of which also lost their function during the disruption. That the actants in the actor-network that enables driving (fuel and card terminals) ceased to function during the ICT outage, demonstrates the complexity and interconnectedness of these networks.

The case of household 1 also points to the car's varied functions. It was not only translated to establish face-to-face connections across distance (increased geographical mobility), it was also translated to function as an actant to replace ICT in the task of facilitating signals from base stations to mobile phones, by moving with the phone to a place where signals could be picked up (increased technical mobility). Reconnections through alternative actants were common during the Lærdal fire. Five of the nine households drove to locations they believed were still connected to functioning base stations, with the aim of regaining mobile coverage (see also Sutton 2012).

However, the capacities necessary to reconnect by mobilising the car was not present in all households, as evident in this reflection from the wife in household 5: *"What we did not know is that if we had driven towards Ærdal we would actually get coverage, because there is a base station at the other side of the fjord, we did not know that"*. Lack of knowledge and information hindered this couple in restoring contact with their relatives. Thus, for this car-enabled reconnection strategy to succeed, it required knowledge of geography and telecommunication systems. Social networks provided a resource for such mobilisation, and several of the householders had talked to other villagers who had told them that it was possible to get coverage in or at the other side of the tunnel. This points to the complexity and centrality of considering social and technical assemblies as interwoven processes to understand how these actor-networks were rebuilt (Wang and Li 2016).

Second phase reconnection work: engaging with intact pieces of ICT to re-establish flow

In the days after the fire, household members continued to explore various ways to re-establish connection and communicate with people outside the village. In working on bridging the gaps created by the disruption, they mapped and used unaffected technologies and zones where infrastructure was intact. Regardless of their obsolescence, three households used their fixed line phone. The husband in household 6 explains this as partly an outcome of experience and distrust of the mobile networks:

> *It took a day before we could use the fixed phone; it took three days before we could use our mobile phones, and we had Internet access via adsl on our fixed phone as well, so I could use that (…) During the hurricane Dagmar [three years previous to the fire] the national broadcaster told us to find information about the situation online. That was a bit strange. That is why we have not disconnected the fixed phone. We do not trust the mobile phone.*

Although mobile phones and routers have replaced the fixed phone as means of modern communication in most households, this family had experienced infrastructure breakdowns before, and decided to keep it as a preparedness measure. This technology enabled them to reconnect with social networks before the mobile networks did. Such creative employment of alternative resources has also been noted in other studies of ICT use in disasters (Shklovski et al. 2010, Procopio and Procopio 2007). Al-Akkad et al. (2013), find that citizens use 'leftover technology' to communicate either by using zones of intact infrastructure, create new combinations of leftover technologies, or sharing private Wi-Fi networks. In Lærdal, the fixed line took on a renewed function within an actor-network of which it previously had been part in order to re-establish flow in the ICT infrastructure.

To make use of 'loopholes' or glitches in the unstable access to the ICT infrastructure was also common. Members from six households recount in various ways how they, through talking to other villagers, learnt that it was possible to find spots nearby where

sending and receiving text messages was possible. For example, the daughter from household 2 says that:

> The next day we had to drive to Ærdal to regain contact, and then I received a lot of text messages from people asking whether we were ok. It was not until then we got them, because in Lærdal we had zero contact with others.

It was not always possible to send and receive instant messages because of the instability in the ICT infrastructure. Hence, some used the messages as information storage, an intermediary station for information that would be unlocked when the mobile phone coverage of sender and receiver regained coverage (Shklovski et al. 2010). As the wife from household 1 indicates, this was not necessarily to establish a direct association between one sender and one receiver:

> *I remember that Internet came back before the phone after the fire. At least where I was at the time, we suddenly discovered that we had Internet coverage on our phones. Then you could send imessages, but not text messages. Then, I could communicate through my son's girlfriend because she has an iPhone, but he did not.*

Other human actors, here her son's girlfriend, were also mobilised and used as intermediary linkages, which facilitated an alternative way of information flow through the actor-network. This illustrates that altering the script of messaging both socially and technologically was a reconnection strategy used to adapt to the confusion and uncertainty of the range of mobile coverage and thus stabilising an unstable network.

These are examples that suggests to how the ANT toolbox can help describe new temporary associations between human and non-human actors that were necessary to reassemble the social of the households during and in the aftermath of the fire. This also highlights the increased work this entailed, and that the resilience in households varied in this respect.

Conclusion

We have made use of concepts from ANT to trace how socio-material networks are destabilised and reconnected during a crisis where ICT infrastructure broke down. We have used examples from the Lærdal fire to show how crises open up the black box of these networks that normally functions as a whole. They consist of complex associations of mutually dependent actants that are part of processes to complete tasks. To re-assemble the social, other available actants are translated to fit into new temporary socio-material networks.

During the breakdown, a key project for the families was to be together, ensure safety and share information. This work included mobilising both human and non-human actors to stabilise the actor-networks that could enable communication and aid information flow. In the first phase, the car expanded the communication range in two ways: as an enabler of face-to-face conversations in an expanded area (increased geographical mobility), and as a reconnector of the mobile phone to other base stations (increased technical mobility). However, to function the car was reliant on other actors also affected by the disruption, creating new barriers and more work to complete the project. In the second phase, pieces of remaining technology were given novel functions to enable communication with people in other areas in two ways: the fixed phone was restored as a carrier of mobile and Internet signals (re-established flow) and text messages were used as information storage.

These findings are just a fraction of how the infrastructure breakdown affected households in Lærdal, and the strategies they applied to make reconnections. However, these small and seemingly trivial examples of their reconnection work provide important knowledge of the robustness of households facing infrastructure disruptions; to what degree we are able to cope without ICT in disasters. The ANT toolbox furthermore allows us to illustrate how disruption causes instability in a number of actor-networks. The extent to which the household was as a stable or unstable actor-network in the various phases of the event, affected the degree to which they could mobilise actants to deal with the crisis, and thus their degree of vulnerability for these types of events (Guldåker 2009). This perspective emphasizes the need to include how changing interplay between material and human actors works as response to, and is thus part of the management of crises and disasters.

References

Al-Akkad, Amro, Leonardo Ramirez, Sebastian Denef, Alexander Boden, Lisa Wood, Monika Büscher, and Andreas Zimmermann. 2013. "Reconstructing normality: the use of infrastructure leftovers in crisis situations as inspiration for the design of resilient technology." Proceedings of the 25th Australian Computer-Human Interaction Conference: Augmentation, Application, Innovation, Collaboration.

Boin, Arjen, and Allan McConnell. 2007. "Preparing for critical infrastructure breakdowns: the limits of crisis management and the need for resilience." *Journal of Contingencies and Crisis Management* 15 (1):50-59.

Brewer, Graham, Aiobheann McVeigh, and Jason von Meding. 2013. "An evaluation of the usefulness of actor network theory in understanding the complexities of vulnerability and resilience in post-disaster reconstruction." *International Journal of Architectural Research: ArchNet-IJAR* 7 (3):80-92.

Byrd, Hugh, and Steve Matthewman. 2014. "Exergy and the city: the technology and sociology of power (failure)." *Journal of Urban Technology* 21 (3):85-102.

Cheshire, Lynda. 2015. "'Know your neighbours': disaster resilience and the normative practices of neighbouring in an urban context." *Environment and Planning A* 47 (5):1081-1099.

Ewart, Jacqui, and Sidney Dekker. 2013. "Radio, someone still loves you! Talkback radio and community emergence during disasters." *Continuum* 27 (3):365-381.

Guggenheim, Michael. 2014. "Introduction: disasters as politics–politics as disasters." *The Sociological Review* 62 (S1):1-16.

Guldåker, Nicklas. 2009. "Krishantering, hushåll och Stormen Gudrun. Att analysera hushålls krishanteringsförmåga och sårbarheter." PhD dissertation, Lund University.

Haataja, Matti, Jenni Hyvärinen, and Anne Laajalahti. 2014. "Citizens' Communication Habits and Use of ICTs During Crises and Emergencies." *Human Technology* 10 (2):138-152.

Heidenstrøm, N, and L. Kvarnlöf. 2017. "Coping with blackouts. A practice theory approach to household preparedness." *Journal of Contingencies and Crisis Management* 26 (4).

Hitchings, Russell. 2012. "People can talk about their practices." *Area* 44 (1):61-67.

Johansson, C, and M Linnell. 2012. "A literature review on community approaches that involve the public in crisis management â€"Fostering community resilience through coproduction by response organisations and citizens, Report prepared for the research project Public Empowerment Policies for Crisis Management (FP7-284927)." *Retrivable from: www. projectPEP. eu.*

Killian, Lewis. 2003. "An introduction to methodological problems of field studies in disaster." In *Methods of Disaster Research*, edited by Robert A. Stallings. Indiana: Xlibris.

Larkin, Brian. 2013. "The politics and poetics of infrastructure." *Annual Review of Anthropology* 42:327-343.

Latour, Bruno. 2005. *Reassembling the social: An introduction to actor-network-theory:* Oxford university press.

Matthewman, Steve. 2012. "Accidentology: Towards a Sociology of Accidents and Disasters." *International and Multidisciplinary Journal of Social Sciences* 1 (2):193-215.

Norwegian Directorate for Civil Protection. 2014. Brannene i Lærdal, Flatanger og på Frøya vinteren 2014. Læringspunkter og anbefalinger [The fires in Lærdal, Flatanger and at Frøya winter of 2014. Learnings and recommendations.]. Tønsberg: Norwegian Directorate for Civil Protection.

NRK. 20.01.2014. „Slik skal Lærdal få mobildekningen igjen [How Lærdal can regain mobile coverage]." *NRK.* https://www.nrk.no/norge/mobile-basestasjoner-pa-plass-1.11480308.

Palen, Leysia, and Sophia B Liu. 2007. "Citizen communications in crisis: anticipating a future of ICT-supported public participation." Proceedings of the SIGCHI conference on Human factors in computing systems.

Palen, Leysia, Sarah Vieweg, Jeannette Sutton, Sophia B Liu, and Amanda L Hughes. 2007. "Crisis informatics: Studying crisis in a networked world."." Proceedings of the Third International Conference on E-Social Science.

Perrow, Charles. 2011. *Normal accidents: Living with high risk technologies.* Princeton New Jersey: Princeton University Press.

Pink, Sarah. 2007. *Doing visual ethnography.* London: Sage Publications.

Procopio, Claire H, and Steven T Procopio. 2007. "Do you know what it means to miss New Orleans? Internet communication,

geographic community, and social capital in crisis." *Journal of Applied Communication Research* 35 (1):67-87.

Semaan, Bryan, and Gloria Mark. 2011. "Technology-mediated social arrangements to resolve breakdowns in infrastructure during ongoing disruption." *ACM Transactions on Computer-Human Interaction (TOCHI)* 18 (4):21.

Sheller, Mimi. 2016. "Connected Mobility in a Disconnected World: Contested Infrastructure in Postdisaster Contexts." *Annals of the American Association of Geographers* 106 (2):330-339.

Shklovski, Irina, Moira Burke, Sara Kiesler, and Robert Kraut. 2010. "Technology adoption and use in the aftermath of Hurricane Katrina in New Orleans." *American Behavioral Scientist* 53 (8):1228-1246.

Shove, Elizabeth, and Gordon Walker. 2014. "What is energy for? Social practice and energy demand." *Theory, Culture & Society* 31 (5):41-58.

Sogn Avis. 20.01.2014. "Tilbyr nettilgang [Offers webaccess]." *Sogn Avis.* http://www.sognavis.no/nyhende/tilbyr-nettilgang/s/1-105-7114286.

Star, Susan Leigh. 1999. "The ethnography of infrastructure." American behavioral scientist 43 (3):377-391.

Sutton, Jeannette. 2012. "When Online Is Off: Public Communications Following the February 2011 Christchurch, NZ, Earthquake." Proceedings of the 9th International Conference on Information Systems for Crisis Response and Management.

Sutton, Jeannette, Leysia Palen, and Irina Shklovski. 2008. "Backchannels on the front lines: Emergent uses of social media in the 2007 southern California wildfires." Proceedings of the 5th International ISCRAM Conference.

Wang, Xuequn, and Yibai Li. 2016. "Understanding collaborative resilience from continuous disruption: an actor-network perspective." *Behaviour & Information Technology* 35 (2):151-162.

Wetzstein, Irmgard, Verena Grubmüller-Régent, Katharina Götsch, and Karin Rainer. 2014. "Crises and Social Media: A Metastudy on Pertinent Research and Practice." *Human Technology* 10 (2):95-124.

Wilford, Justin. 2008. "Out of rubble: natural disaster and the materiality of the house." *Environment and Planning D: Society and Space* 26 (4):647-662.

Note

1 This research is part of a Nordic project, financed by the Norwegian Research Council (grant no. 238059), about the crisis handling and preparedness of households for electricity and ICT breakdowns in Norway, Sweden and Iceland. Six crisis events were studied and data was gathered through fieldwork, interviews, media analysis and a survey among households in the three countries (www.homerisk.no).

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Networks of expertise: an example from process consulting

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Abstract

In this paper, we explore how expertise is configured and enacted in consultancy work in public sector organizations. By drawing on recent writings on a sociology of expertise, we analyse expertise as a distributed performative actor-network effect. Through an empirical example from a process consultancy assignment in a hospital, we discern four modes of practice by which a network of expertise comes to work. Firstly, we explore a mode of *extending* a network of expertise to include more allies. Secondly, we observe a mode of *activation* where certain parts of the network are made active and present. Thirdly, we explore a mode of *brokering* between top management ambitions and the everyday medical practice.

Fourthly, we see a mode of *altering* the content of the consultancy process to make it work with the client. Through this analysis, we move beyond viewing expertise as either an attribute to, or a substantial skill of the consultant and advance a heterogeneous social understanding of expertise in consultancy work.

Keywords: Sociology of expertise, Consulting, Actor-Network Theory, Management, Professions, Public sector

Introduction

The expansion of management consultants within HR, strategy, accounting and finances has led researchers within organization studies and sociologists with an interest in professional work to discuss consultancy as a new kind of profession or expert labour that provides influential knowledge on management to public and private organizations (Kirkpatrick et al. 2016, Mckenna 2006, Thrift 2005, Alvesson 2002). For instance, it has been argued that transient consultants have replaced entrenched bureaucrats in the legitimation of management decisions (Sennett 2006). Whilst expert status appears as a raison d'être of consultancy work, the knowledge base and expert status of consultancy has been questioned (Schein 2006, 1999, Alvesson and Johansson 2002). It has been pointed out that consultancy acts within situations without 'institutional shelter', which also makes consultancy expertise blurry (Sennett 1998, Muzio et al. 2016). Likewise, existing literature has argued that consultancy, management and managerial knowledge fold into each other in contemporary organizations (O'Mahoney et al. 2015) and create a contested managerial domain where many different managerial occupations (consultants, politicians, managers, academics etc.) claim jurisdiction (Wylie et al. 2014). In turn, due to an often betwixt-and-between position, consultants need to assert their relevance and expert status continually. We argue that this continual work makes consultancy work, not least in public sector settings, an apposite case for advancing our understanding of expertise in organizational settings.

With regard to the role of expertise in consultancy, it is often treated as black-boxed concept that either become an attribute to the consultant or a substantial possession of the consultant (Clegg et al. 2007, Heusinkveld et al. 2014, Schein 1999). For example, as an at-

tribute, expertise has been described as something the consultant 'claims' or 'signals' by asserting know-and-tell solutions and performing in an 'expert-like' way (Wylie et al. 2014, Wright 2009, Alvesson 1993: 1004). In contrast, Schein (1999) offers another more substantial perspective and considers expertise more as something the consultant possesses, and points out that expertise differs across different consultancy approaches. In this latter respect, the good consultant is argued to be an expert at '[…] sensing from one moment to the next what is going on and choosing a helping mode that is most appropriate to that immediate situation […]' (Ibid, 21 – 22). Although emphasizing the role of the client in the consultant's work, Schein (1999) portrays expertise as interior to the consultant, as the ability to evoke a particular sensitivity. In turn, prior literature on consultancy has mainly captured expertise by discussing rhetorical and esoteric aspects of expertise and expertise as an attribute or individual possession. We argue that the understanding of expertise as a possession or an attribute of the consultant – bestowing on the individual a status as 'esoteric expert' (Alvesson and Johansson 2002) – is problematic. These perspectives leaves it under-theorized how expertise is accomplished in consultancy practice.

Advancing another social understanding of expertise involves developing a more comprehensive approach compared to previous individualized studies of expertise in consultancy practice. We draw inspiration from an actor-network-inspired orientation, and, instead of seeing expertise as a personal possession or attribute, we see expertise as a distributed performative *actor-network effect* (Eyal 2013, Gherardi 2012, Nicolini 2013). Thereby we advance the argument put forth by sociologist Gil Eyal (2013), who suggests replacing the sociology of professions with a sociology of expertise. According to Eyal, the former encompasses an insightful although slightly narrow focus on the individual professional as the one who possesses a certain kind of expertise granted by significant others. The latter, could for instance be professional associations who license the expert or provide a mandate for jurisdictional claims. In contrast, a sociology of expertise focuses on how forms of expertise assemble in a broader sense through the performance of certain tasks. To paraphrase Eyal (2013: 868), a sociology of expertise suggests understanding expertise as an arrangement of actors that as-

semble and 'create a network of expertise'; thus, expertise becomes a fundamentally heterogeneous social accomplishment. Whereas Eyal (2013) uses this analytic endeavour to make a historical account of how a network of expertise becomes institutionalized, we investigate how expertise is translated in consultancy networks that assemble and enable forms of expertise in action.

We will focus on forms of expertise in process consultancy. The 'process' consultant is described in the work of Schein (e.g. 1999) as an expert on human 'process' who typically works through 'facilitative interventions'. This mode of expertise has gradually been institutionalized as a legitimate development approach in Danish public sector management (Elmholdt 2016). In continuation of this, we raise the research question 'how is expertise enacted in process consultancy practice?' Through this question, we wish to contribute to discussions of expertise in organizational settings and the understanding of how process consultants, requested as kind of managerial experts, assert influence in organizational settings. We continue by elaborating on the concept of expertise.

Theoretical framework: expert performance and a sociology of expertise

Eyal (2013: 869) finds that expertise derives 'from the Latin root *experiri*, "to try"' and is often related to know-how and 'the capacity to get a task accomplished better and faster because one is more experienced, "tried"'. Extant literature on expert performance has acknowledged the embodied and tacit dimensions of expertise and an inability to explicate all there is to an expert performance (Dreyfus and Dreyfus 2005). This argument relates to the distinction between 'knowing how' and 'knowing that' introduced by Ryle (1949) and the later work of Polanyi (1966) on tacit knowledge (Kotzee 2014). In this line of research the focus on expert performance turns towards an 'epistemology of practice' instead of an 'epistemology of possession' (Cook and Brown 1999). These descriptions emphasize a focus on the situated aspects of expert performance and how a certain context and 'background of practices' is embodied and mastered by the expert, thus enable and explain expertise (Eyal 2013). In turn, expertise is partially decentred and not only an attribute of the individual but rather, as Lave and Wenger argue: '[…] mastery resides not in the master but in the organization of the

community of practice of which the master is part' (Lave and Wenger 1991: 94). This prior literature largely present expertise as a substantive skill of practical knowledge, it emphasizes the embodied, distributed and collective aspects of expertise and encourages one to look beyond what can explicated by the individual to study expertise (Gherardi 2012).

Moving this further, Eyal (2013) suggests exploring expertise as an assemblage, which is 'analysed as networks that link together objects, actors, techniques, devices and institutional and spatial arrangements' (Eyal 2013: 864). This actor-network theory (ANT)-inspired orientation provokes a sensitivity towards the sociomaterial or entangled aspects of expertise. To look beyond individual performance, Eyal (2013) suggests not settling with expertise as a possession of the organization, an individual or a profession. Instead, a sociology of expertise must unpack the background of practices or network that assembles and enables expertise to happen. In turn, to apprehend expertise in process consultancy we are to focus our analysis on the actor-network that enables expert performances. This mean a focus on the tools and devices that are used by consultants in their work, the organizational hinterland, the concepts and contributions made by other people, such as managers, in this accomplishment.

> […] a network of expertise, as distinct from the experts, becomes more powerful and influential by virtue of its capacity to craft and package its concepts, its discourse, its modes of seeing, doing, and judging, so they can be grafted onto what others are doing, thus linking them to the network and eliciting their cooperation (Eyal 2013: 876).

In other words, process consultants are not only enabled by being suppliers of managerial expertise, but also by co-producing managerial expertise with their clients. Their clients may further be able to use the produced managerial knowledge to boost their own managerial authority. Hence, it is by *extending* managerial expertise to other actors that it becomes powerful (Eyal 2013). This view makes it possible to see expertise not as a substantive skill of the individual but as a performative effect of a network, which also provides the equipment to become a skilled performer. Latour (2005) suggests

using the term 'plug-ins' to describe how certain circulating entities work as plug-ins to 'allow you to *activate* what you were unable to see before' (Latour 2005: 207). This idea of plug-ins or entities that are *activated* and made present provides a helpful approach to studying how expertise is enacted in action (see also Cooren 2010). In this sense, expertise can also be considered as enabled because the consultant *activates* certain entities like concepts, managerial mandates, tools etc. that are circulating and enable the accomplishment of expert performances. However, these plug-ins do not remain unchanged, like translation, activation also means 'to set something in a new place', which involves 'to construct it anew' (Czarniawska 2002: 7). This underscore a central concern to ANT, which is to focus on the momentary *translation* of diverse interests, agendas or other actors, which assemble to form a network of expertise (Callon 1986). In sum, an ANT-inspired orientation, as taken in this article, encourages a focus on opening up the background of practices and arrangements that must be in place to perform the task at hand and to enact expertise.

Empirical case: introduction to the research site and methodology

We conducted an analysis of expertise in action during a consultancy assignment at a Danish university hospital. The assignment took place from June 2013 to February 2014, when a medical department undertook an organization development process driven by internal organizational process consultants from the central HR department. The development process was partly requested by the top management at the hospital as an overall management development programme and strategy that were to address the difficulties faced by clinical professionals occupying managerial positions. The declared aim of the development programme was 'to mobilize the managerial resources' at the hospital (internal document), partly in response to an unsatisfactory psychological workplace assessment, and to improve the psychological work environment. The top management had in advance pinpointed the front-line practice of professionals in managerial roles in each hospital department as the developmental target.

The overall process consisted of several consecutive events. First, the top management had drawn up the overall strategy and re-

quested a management development programme; thus, the top management could be described as the initial client. Subsequently, the managerial team of each department whose staff (professionals in managerial roles) the programme concerned had to assign their department to the overall program. Finally, the group of professionals in managerial roles who were identified as the main developmental target became involved (this latter group ultimately ended up as the primary client) (see fig. 1 for an overview). As a result, the process the consultants were hired to lead was positioned between demands and expectations from top management at the hospital and the everyday practice and concerns in each department. The consultants' role could be divided into two: firstly, their role was to identify current problems in each department and relate those to the overall program; secondly, it was to facilitate and lead a process that would address those problems in each department. This made the task of the consultants a balancing act involving enactments of diverse interests and agendas; thus, their ability to act with expertise also was to be tested repeatedly.

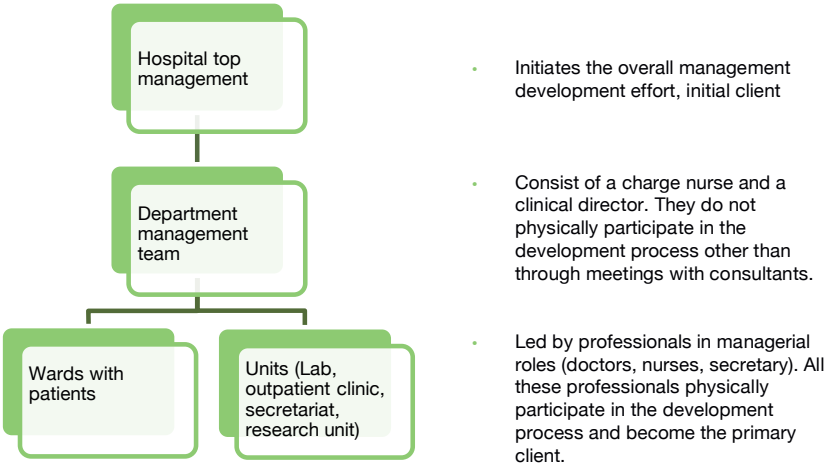

Figure 1: Simplified hierarchical overview of the hospital

The empirical material generated from the above-described process is part of a larger ethnographic account (Elmholdt 2016), which involved approximately 200 hours of selective participant observation (Rubow 2003, Spradley 1979), 37 semi-structured interviews (Kvale and Brinkmann 2009) and document studies (Lynggaard

2015). In this article, we focus only on materials relating to the consultant-client engagement that unfolded in the medical department. This consultant-client engagement happened to exemplify very well the distributed conception of expertise that we want to account for. This process is, paraphrasing Cooren et al. (2006, 540), interesting, 'not because of its representativeness, but because of its analysability'.

We conducted the analysis by firstly examining the empirical material (interview transcripts, observation notes and documents) to explore examples of how expertise was enacted in the consultant-client relationship. In our preliminary analysis, we decided to categorize the empirical material according to how and through which means the network was *extended* and *activated* in the consultants' work. Based on the preliminary analysis, we re-examined our empirical material and were able to nuance the initial categories and establish four different, although entwined, modes of practice in the consultants' work. These were respectively modes of:

1 *Extending* the network to include more allies;
2 *Activating* certain parts of the network by the means of plug-ins;
3 *Brokering* between top management and the everyday medical practice;
4 *Altering* content in collaboration with the client.

We analyse these four modes of practice in the following empirical sections. Although the modes of practice are presented in a chronological order of time this divide mainly has a heuristic purpose. In turn, the different modes of practice were continuously at play throughout the process.

Extending the network: creating conditions for consultancy work

The first practice we will focus on is how the consultants become part of an extended network of allies that contributed to and delegated authority to the consultants' expertise. Although the hospital's top management from the very start became co-contributors to the consultants' work and expertise, our focus will be on how it unfolded in action in the medical department.

The process began with the medical department's managerial team enrolled their department to participate in the overall development process. A meeting followed this enrolment between the consultants and the department's management team. The purpose of the meeting was for the consultants to describe their further work in the department and to explain the request and what was expected of the departmental management team; thus, also to discuss the task and role of each participant during the process. As the overall initiative from the top management was intended to target the 17 professionals in front-line managerial roles in the department (nurses, doctors and secretary, fig. 1), it was decided that the departmental management would take no further direct part in the process. The consultants explained that the exclusion of the departmental management team 'would make other conversations possible among the front-line participants' (Interview). In turn, after having discussed current issues and ambitions with the departmental management team, the consultants continued their assignment by extending the process further to include expectations and agendas from the front-line professionals in managerial roles. This part initially involved conducting individual interviews with each of the participating professionals. As one of the consultants explained, these interviews not only provided knowledge about the department but also allowed them '[…] to make connections to the participants […]' and '[…] prepare them for the further process' (Interview).

The initial part of the process, as just described, consisted of a background of practices that lend weight to the consultants' expertise. By including the hospital's top management and the departmental management team, and by conducting interviews with the front-line participants, the consultants extended the network or number of participants in the programme. In turn, several attachments were created, which extended the number of providers of content to the process and allowed the participants to use and shape the expertise of the consultants. In other words, the expertise of the network also becomes the expertise of the consultant. All these attachments provided an important background for the consultants' further work in the medical department, which was to be outlined at a 'thematization' meeting. At this meeting, the issues derived from the interviews would be presented by the consultants. Many agendas were at play at this moment prior to the meeting, since

the programme was partially shaped by the top management at the hospital, the departmental management team and the professionals in managerial roles. We will see how this went in the section that follows.

Activating allies and acting as a broker

In the following, we focus on how the different actors and prior activities were made active as plug-ins for acting with expertise in the development process. We will use two excerpts from the 'thematization' meeting where the consultants presented their findings and the further development programme.

> Excerpt 1:
> The 'thematization' meeting took place in a meeting room at the hospital; the room was set up in an auditorium-like style, with chairs. The consultants arrived early to set up the projector and make sure the PowerPoint show would work. The professionals in managerial roles started to arrive shortly afterwards. They sat down on the chairs. The consultants remained standing and started to introduce themselves by repeating their position in the HR development department at the hospital while stating their educational background. In continuation of this, the consultants continued by saying: 'Firstly, we talked to the department management team to find out their objectives for this process, and secondly, we talked to you guys through the interviews, and what we hear, fortunately, fits rather well into the overall aim of the management development initiative from the hospital top management'. (Field note, 2013).

What becomes apparent in this excerpt is how the consultants activated different entities in the network, which were important to enact a legitimate mode of expertise. Their educational background and employment at the hospital were important plug-ins to the consultants' initial positioning. Further, the request from the hospital top management and the departmental management were activated as collaborators lending weight to the programme. The consultants thus enact through activation a larger network of allies that

delegate and translate the consultancy position into one of expertise. In turn, the consultant must balance diverse agendas from the different entities in the network and act by brokering between those diverse agendas. This ability constitutes one of the important skills of the consultant: to activate and act as a broker between different parts, thus assembling a network of expertise.

However, whereas sharing the activity with other entities was important at the outset, the interviews also worked as an important technology in enacting consultancy expertise. In line with their process consultancy approach, the consultants underscored how the interviews should ensure that the programme was 'tailor-made' and not an off-the-shelf kind of intervention.

> Except 2:
> Bullet points from the interviews were included in the slideshow and appeared as condensed descriptions of the participants' aims and concerns. Based on the interviews, the consultants inferred that currently the participants expressed a lack of knowledge about a 'common task' as a group of people in managerial roles. The consultants argued: 'There is no doubt that you have a common endeavour to do the best for the patient, but you become more hesitant when we ask if you also have a common task'. The consultants continued to explain some of the suggested content of the programme and explained that 'the core task' would be central to the development effort. This notion, 'the core task', had circulated at the hospital through an external management consultant and had gained wide acceptance as an essential concept of focus. (Field note, 2013)

The interviews worked as an important device to engage the participants as collaborators; thus, the consultants positioned themselves as conveners of the participants' interests. In addition, the interview allowed the consultants to question knowledge about a common task as a group and further invoke the 'core task' as an essential plug-in to the process. The consultants problematized the current situation and indicated that the programme could translate into a solution to this lack of knowledge. In other words, by using

the interviews, the consultants could act knowledgeable about the organization and further actively position themselves in a particular line of delegates.

Testing consultancy expertise and altering content

The response to the consultants' presentation is our focus in this part. Being recognized as enacting expertise relies on being positioned legitimately in relation to the many different agendas of the client. It becomes very evident in this situation that to accomplish their task the process consultants require collaboration from the professionals in managerial roles. The professionals need to recognize what the consultants are saying as representing legitimate knowledge to enact expertise in the situation – a part that happened to be difficult.

> Except 3:
> The consultants had introduced the programme, which would consist of three seminars of three days each that would take place at a conference facility. The consultants underscored the flexible aspects of the programme and their work by saying: 'The programme must provide value, so we are making adjustments as we know what you are requesting'. In continuation of this, the situation changed and the participants started to question the programme outlined by the consultants; one asked: 'What do you usually see departments like ours get out of this'? The consultants questioned the ability to provide any promises in advance; however, this answer did not satisfy all the participants. The consultants continued and explained: 'The problem is that this [the outcome] is something we cannot control; we can help you [participants] to increase the likelihood that what you initiate succeeds and is realized. However, because there are so many things in play […] we cannot control all this from here […]' One of the participants then asked; 'but what will your role be in this process?' The consultants explained that their role was to act as 'process consultants' providing facilitative assistance, thus the certainty the participants requested was impossible according to the consultants. (Field note, 2013)

Some of the participants acted as if they expected the consultants to be accountable for their contribution in exact terms. In contrast, the consultants presented their process-consulting role as different and seemed to downplay their authority. This kind of contribution was not recognized by the participants as the right kind of expertise, as the excerpt below shows.

> Except 4:
> The participants started to question the lack of direct participation from the departmental management. One of the participants asked: 'Does this mean that the department management are not a part of the nine days? So it could be that what we decide during the nine days does not get carried out?' Without the departmental management, the participants seemed to doubt that this kind of development effort would be able to change anything. (Field note, 2013)

After the meeting, the consultants decided to temporarily call off the programme, as they did not consider there to be 'sufficient trust in the process to proceed' (Interview, consultants). This lack of trust was apparent in several interviews with the participants afterwards. One participant argued: 'but what is the purpose of all the interviews? […] From the interviews, they could have said we have ten suggestions for things you should work with in the department […] But that was just like nothing […] it was really like the clash of two different worlds […]' In turn, the participants did not accept the expertise performed by the consultants, which also relied on their recognition and engagement as client. This proved a lack of 'trust in the process', which, according to the consultants, was essential for the process to proceed (Interview, consultants). The consultants further argued that changes had to be made. Indeed, adjusting along the way and the ability to be 'flexible as a consultant' (Interview, consultants) was an ongoing concern to the consultants. In continuation of the new situation, the departmental management team decided to renegotiate the programme with the professionals in front-line managerial roles. After a meeting between the consultants, the participants and the departmental management team, they jointly decided to alter the focus of the programme and

to repeat the programme in a changed format. This appeared as a mobilizing move since now both the consultants and the departmental management team would be physically present in the process. In sum, this final part shows how the network of expertise is fragile and easily become destabilized. For instance, it becomes visible when the participants expresses confusion about the purpose of the interviews, and the consultants has to engage in a mode of altering the content to re-establish a position of expertise.

Discussion and conclusion: consultancy and networks of expertise

Drawing on our case, we can now start to unravel some of the dynamics involved in enacting expertise through our theoretical position. Although our case unfolds with only partially anticipated outcomes, we do get an understanding of how expertise is enacted in process consultancy practice and how diverse interests are at play, which must be translated in a legitimate way. By deploying an actor-network-inspired orientation, we indeed see how the consultant activates different plug-ins and how the network of expertise extends beyond the consultant. It is the consultant + the hospital management + departmental management team + professionals in managerial roles + concepts, interviews and tools etc., which enact expertise (see also Callon & Law 1997, Law 1997).

In our case, we analyse how consultancy expertise is enacted and comes together as a network effect through four different modes of practice – *extending*, *activating*, *brokering* and *altering*. Although the four modes of practice are not separable as such but rather add to each other, the four modes have some specific characteristics. Firstly, enacting expertise partially depended upon extending the network. *Extending* concerns how participants are included as co-shapers of the consultants' work. The consultant does not act as the single provider of expertise, but rather relies on the expertise of the professionals in managerial roles. Through the interview and dialogue, the consultants extend and thereby strengthen the network of expertise, and the professionals in managerial roles start to act as co-experts. In continuation of this, the practice of *activating* concerns how the consultant puts the network of allies to work and increases or decreases the number of agencies supporting the consultants' work. In turn, the practice of activation underscores how the net-

work orientation opens the black box of expertise instead of making it a matter of mostly tacit knowledge or substantial skills (Polanyi 1967). A network view of expertise might seem to downplay the actions of the consultant or the psychological or human aspects of expertise; however, this is not the main point. The consultant does make choices; they activate attachments and detachments to various allies and figures, such as 'the core task' (excerpt 2). Hence, the consultants actively perform an important role in the enactment and strengthening of expertise by becoming a node in the network (Cooren et al. 2006). In turn, activating also relates to the third mode of *brokering* as it is also about translating and connecting issues of the participants to concepts, knowledge and organizational interests. *Brokering,* however, specifically happens when the consultants alternate between — or exchange — the ambitions of the top management and the ambitions of the department. For instance, the consultants argued that the concerns voiced in the interviews by the professionals in managerial roles were well aligned with the purpose of the overall management development effort expressed by the hospital management and the ambitions voiced by the departmental management team (excerpt 1). In this situation, different ambitions are turned into combinable managerial matters of concern. The translation involved in brokering thus can be outlined as the consultants expressing in their 'own language what others say and want, why they act in the way they do and how they associate with each other' (Callon 1986:19). In turn, this underscores how the consultant performs a network and acts as a spokesperson for other agents (top management, the hospital, departmental management team and each of the participants), which provide viable claims to expertise. However, in the end, if the consultants' work is not recognized as a legitimate attempt at development that invokes collaboration from the participants, the intervention is likely to backfire. We see how this is the case in the end (excerpts 3 and 4), which also accentuates the fourth practice of altering. *Altering* is about engaging in changes to the content and the trajectory of the consultants' work. In our case, altering the content of the programme proved to be an important tool for enacting and strengthening expertise, in turn, to make the programme work. In sum, the four modes of practice that we have established encapsulate how expertise was enacted and strengthened in the consultant-client re-

lationship in our empirical case. The modes shows how expertise in consultancy, not only requires inputs from various actors it also contain exploitation and alteration of various agendas and knowledges to be positioned within a legitimate set of delegates.

Two main contributions emanate from our case study. Firstly, by unpacking expertise in consultancy practice, our study contributes to recent discussions of the role and enactment of expertise and skilled performance in organizational settings and contemporary work (Wylie et al. 2014, Gherardi 2012). Although consultancy has been considered as relying on expertise (Wylie et al. 2014, Schein 1999), there is a dearth of research exploring how expertise is accomplished in practice; thus our study advances this underdeveloped field of interest. Secondly, our study contributes to practice-based studies of expertise and a sociology of expertise by not only prolonging the research agenda put forth by Eyal (2013) in another context, but also by showing how expertise may be assembled and enacted *in action*. Although Eyal (2013) is inspired by actor-network theory, he ends up portraying expertise as relying on a stabilized institutional set-up. Our focus relies less on a certain institutional set-up as explaining expertise. In contrast to Eyal, we explore how expertise is enacted in action, which underscores how a network of expertise is anything but static and requires being continuously assembled and re-enacted. Through our study, it becomes apparent how expertise is a heterogeneous social accomplishment situated in different modes of practice that contain relevant concepts, devices and arrangements.

While our focus has been on aspects of process consultancy at a hospital, we imagine this research focus to be relevant, not only to other forms of consultancy expertise. A general doubt in expert status (Callon et al. 2009) and a turn towards more facilitative approaches in professional services, for instance in new public governance and post-NPM regimes (Lindberg et al. 2015), do not necessarily mean that expertise vanishes, but that expertise become enacted differently.

References

Abbott, A., 1988. "*The system of professions: An essay on the division of expert labor*". University of Chicago Press.

Alvesson, M., 1993. "Organizations as rhetoric: Knowledge-intensive firms and the struggle with ambiguity". *Journal of Management studies*, *30*(6), 997-1015.

Alvesson, M., & Johansson, A. W., 2002. "Professionalism and politics in management consultancy work". *Critical consulting: New perspectives on the management advice industry*, 228-246.

Callon, M., 1986. "The sociology of an actor-network: The case of the electric vehicle". In *Mapping the dynamics of science and technology* (pp. 19-34). Palgrave Macmillan UK.

Callon, M., & Law, J., 1997. "After the individual in society: Lessons on collectivity from science, technology and society". *Canadian Journal of Sociology/Cahiers canadiens de sociologie*, 165-182.

Callon, M., Lascoumes, P., & Barthe, Y., 2009. "*Acting in an uncertain world"*. MIT press.

Clegg, S. R., Rhodes, C., & Kornberger, M., 2007. "Desperately seeking legitimacy: Organizational identity and emerging industries". *Organization Studies*, *28*(4), 495-513.

Cook, S. D., & Brown, J. S., 1999. "Bridging epistemologies: The generative dance between organizational knowledge and organizational knowing". *Organization science*, *10*(4), 381-400.

Cooren, F., Thompson, F., Canestraro, D., & Bodor, T., 2006. "From agency to structure: Analysis of an episode in a facilitation process". *Human relations*, *59*(4), 533-565.

Cooren, F., 2010. "*Action and agency in dialogue: Passion, incarnation and ventriloquism"* (Vol. 6). John Benjamins Publishing.

Czarniawska, B., 2002. "A tale of three cities: Or the glocalization of city management". Oxford University Press on Demand.

Dreyfus, H. L., & Dreyfus, S. E., 2005. "Peripheral vision expertise in real world contexts". *Organization studies*, *26*(5), 779-792.

Elmholdt, K. T. 2016. "*Provoked legitimacy"*. PhD series, Aarhus University

Engwall, L. & Sahlin-Andersson, K., 2002. "*The expansion of management knowledge: Carriers, flows, and sources"*. Stanford University Press.

Evetts, J., 2011. "A new professionalism? Challenges and opportunities". *Current sociology*, *59*(4), 406-422.

Eyal, G., 2013. "For a sociology of expertise: the social origins of the autism Epidemic". *American Journal of Sociology*, *118*(4), 863-907.

Gherardi, S., 2012. "*How to conduct a practice-based study: problems and methods*". Edward Elgar Publishing.

Gorman, E. H., & Sandefur, R. L., 2011. "Golden Age," Quiescence, and Revival How the Sociology of Professions Became the Study of Knowledge-Based Work. *Work and Occupations*, *38*(3), 275-302.

Heusinkveld, S., Sturdy, A., & Werr, A., 2011. "The co-consumption of management ideas and practices". *Management Learning*, *42*(2), 139-147.

Kellogg, K. C., 2014. "Brokerage professions and implementing reform in an age of experts". *American Sociological Review*, 0003122414544734.

Kirkpatrick, I., Lonsdale, C., and Neogy, I., 2016 "Management Consulting in Health". In Ferlie, E., Montgomery, K., & Pedersen, A. R. (Eds.). *The Oxford Handbook of Health Care Management*. Oxford University Press.

Kotzee, B., 2014. "Differentiating forms of professional expertise". *Knowledge, Expertise and the Professions*, 61-77.

Kvale, S., & Brinkmann, S., 2009. "InterView". 2. udgave. *København: Gyldendal akademisk*.

Latour, B., 2005. "*Reassembling the social: An introduction to actor-network-theory*". Oxford university press.

Lave, J., & Wenger, E., 1991. "*Situated learning: Legitimate peripheral participation*". Cambridge university press.

Law, J., 1997. "*The manager and his powers*". Lancaster University, Department of Sociology.

Lindberg, K., Czarniawska, B., & Solli, R., 2015. "After NPM?" *Scandinavian Journal of Public Administration*, *19*(2), 3-6.

Lynggaard, K., 2015. "Dokumentanalyse". In Tanggaard, L & Brinkmann, S. (Eds.) *Kvalitative metoder*. Hans Reitzel.

McKenna, C. D., 2006. "*The world's newest profession: Management consulting in the twentieth century*". Cambridge University Press.

Muzio, D., Brock, D. M., & Suddaby, R., 2013. "Professions and institutional change: towards an institutionalist sociology of the professions". *Journal of Management Studies*, *50*(5), 699-721.

Muzio, D., Kipping, M., & Kirkpatrick, I., 2016. "Governance units and field evolution dynamics: The case of UK management consulting" *Paper presented at Academy of Management Annual Meeting*

Nicolini, D., 2012. "*Practice theory, work, and organization: An introduction*". Oxford university press.

O'Mahoney, J., & Sturdy, A., 2015. "Power and the diffusion of management ideas: The case of McKinsey & Co". *Management Learning*, 1350507615591756.

Polanyi, M., 1966. "The tacit dimension". Gloucester, MA: Peter Smith

Rubow, C., 2003. "Interviewet som deltagerobservation". In Hastrup, K. (Ed.) *Ind I Verden: Grundbog I Antropologisk Metode*, p. 227-244. Hans Reitzel: København

Ryle, G., 1949. "The concept of mind". Hutchinson. *London, UK*.

Schein, E. H., 1999. "*Process consultation revisited: Building the helping relationship*". Reading, MA: Addison-Wesley.

Schein, E. H., 2006. "From brainwashing to organizational therapy: A conceptual and empirical journey in search of 'systemic' health and a general model of change dynamics. A drama in five acts. *Organization Studies*, *27*(2), 287-301.

Sennett, R., 2007. "*The culture of the new capitalism*". Yale University Press.

Spradley, J. P., 1979. "*Participant observation*". Waveland Press.

Sturdy, A., 2011. "Consultancy's consequences? A critical assessment of management consultancy's impact on management". *British Journal of Management*, *22*(3), 517-530.

Thrift, N., 2005. *Knowing capitalism*. London: SAGE Publishing.

Wylie, N., Sturdy, A., & Wright, C., 2014. "Change agency in occupational context: lessons for HRM". *Human Resource Management Journal*, *24*(1)

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Volume 15. Autum 2017 • on the web

Social Reproduction and Political Change in *The Wire*

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Abstract

This paper examines a core tension in the political television serial *The Wire* (2002-2008). While several critics have argued that this show is both "bleak" and "systemic" in its portrayal of contemporary society, this paper argues that it is useful to understand these textual elements as building blocks in *The Wire*'s attempt to create a coherent and consistent political argument. The paper argues that had *The Wire* been structured as a more uplifting and redeeming story, the systemic nature of its societal criticism would be undercut and the show would not embrace the logical consequence of the politics it espouses.

Keywords *The Wire,* David Simon, political television serials, systemic analysis

Introduction

In an oft-quoted turn of phrase, David Simon, showrunner of HBO's *The Wire* (2002-2008), lists the major governing forces that shape

and restrain the lives of the characters that inhabit *The Wire*'s fictionalized rendition of Baltimore, Maryland:

> But instead of the old gods, *The Wire* is a Greek tragedy in which the postmodern institutions are the Olympian forces. It's the police department, or the drug economy, or the political structures, or the school administration, or the macroeconomic forces that are throwing the lightning bolts and hitting people in the ass for no decent reason (Simon in Hornby 2007, NP).

Simon's mention of "the old gods" reveals how he sees *The Wire* as being indebted to ancient Greek drama which, to him, is a proper frame of reference in terms of understanding and underscoring how the characters of *The Wire* are at the mercy of structural and institutional forces that are beyond their control. Noting on this central aspect, Jason Mittell argues that on *The Wire* "characters' agency is rarely able to make a difference in broader institution systems" (Mittell 2015, 222) and the show's characters are surely overmatched when facing the force of institutional and socio-economic structures. Indeed, it has been argued that *The Wire*'s portrayal of Baltimore politics is one that leaves very little hope for positive change. Peter Dreier and John Atlas criticize *The Wire* for failing "to offer viewers any understanding that the problems facing cities and the urban poor are *solvable*" (Dreier & Atlas 2009, 332, italics in the original). Similarly, Baltimore poet Ta-Nehisi Coates labels it a nihilist show (Coates 2008, NP). Certainly, conceptualizing institutions as "Olympian forces" suggests how the characters of *The Wire* are all but powerless in their attempts to solve crimes, change the dominant political culture or alleviate the social ills that affect this Baltimore. For these reasons, Marsha Kinder (2012) argues, in one of the early academic analyses of *The Wire*, that the show presents a *systemic* characterization of the contemporary American metropolis. This article examines these networked institutional forces and subsequently considers what this conceptualization entails for the politics that *The Wire* espouses. For if a show focuses on the dysfunctional aspects of a society, it – at least implicitly – calls for change. However, *The Wire*'s portrayal of institutional networks seems to preclude any notion of individuals or groups having the needed

power to change their circumstances. What, then, does this conundrum mean for the way that *The Wire* is a political television serial? That is the interpretative question that is at the heart of this article.

In Jason Mittell's view, the central formal element of today's innovative strand of television is its "complexity", which, however, takes on many forms. He argues that *The Wire* is characterized by a distinct "centrifugal complexity" that relates a "complex web of interconnectivity forged across the social system rather than in the depth of any one individual's role in the narrative or psychological layers" (Mittell 2015, 222).[1] Thus, the narrative complexity of *The Wire* is a *formal* feature that facilitates a portrayal of *social* complexity. Erlend Lavik notes that whereas several contemporary television serials are marked by, in Mittell's terminology, their "narrative special effects" (Mittell 2015, 45), *The Wire*'s appeal lies more in its content. Lavik writes that "if narratively complex TV-series invite us to assume the role of amateur narratologists, we could say that *The Wire* invites us to assume the role of amateur sociologists" (Lavik 2014, 133).[2] This sociological gaze is to see all social phenomena in relation to one another.

In the fifth season, journalist Gus Haynes is in a heated debate in the editorial office of *The Baltimore Sun*. He argues that "I think you need a lot of context to seriously examine anything", (5.2) which can be seen as a method statement for the politics of the entire series. In this sense, the formal complexity of how the narrative is told reflects the social complexity of the diegesis it contains, where institutions themselves are portrayed in their societal context. Large institutions such as the police force, the school system, city hall etc. are thus all seen as elements within the larger systemic level that Kinder identifies. In this perspective a school is not just framed as an educational institution but is also a site of struggle for teachers and children, which, in the vision of *The Wire*, can only be appreciated and understood in the context of the loss of jobs, unemployment, and the war on drugs. It is in this way that *The Wire* makes full use of the ever-expanding 60 hour long narrative to paint a societal portrait that would be difficult to accomplish in other art forms, except for maybe the novel.[3]

"The king stay the king"

In his 2012 video essay "Style in *The Wire*", Erlend Lavik points to a central scene where D'Angelo Barksdale explains the game of chess to two of his subordinates in the drug trade. D'Angelo emphasizes how pawns stay pawns and that "the king stay the king"[4] which, adding to its semantic centrality, is also the epigraph of that very episode. The parable is not lost on his subordinates and one of them, Bodie Broadus, tries to reject the notion that the stratified "social structures" of chess should be applicable to his life. Believing in the notion of social uplift, Bodie accepts that pawns will only stay pawns "unless they some smart ass pawns" (1.3). It is only much later, in season 4, that Bodie realizes that "this game is rigged, man. We like them little bitches on a chessboard" as he puts it to Detective Jimmy McNulty (4.13). Bodie's character arc is in and by itself a long narrative portrayal of how different social phenomena, when seen in relation to each other, compound a network that is so hard to escape for a character such as Bodie. This scene, then, is synecdochic for the series' systemic portrayal of contemporary urban realities. This is a world of social reproduction rather than of social uplift and change.

An important part of Lavik's analysis, however, is how it points to another scene in the series that builds on the parable that D'Angelo makes in the pit in the low rises of Western Baltimore. In this other scene, Detectives Lester Freamon, Bunk Moreland, Kima Greggs, and Jimmy McNulty are standing in a square discussing and venting their frustrations over being forced to push a case prematurely due to pressure concerning clearance rates (1.6). "Just as this institutional dysfunction is most pointedly exposed in the conversation that ensues," Lavik argues, "the mise-en-scène alludes to the previous discussion between D'Angelo, Bodie, and Wallace about chess" (Lavik 2012). In the foreground of the shot, two hands move pieces around a chessboard making the detectives in the background of the shot look "like pieces in the game" (Lavik 2012). These two chess players in the extreme foreground, then, "resemble Olympian Gods pulling the strings from above, making the characters mere puppets, victims of forces beyond their control" (Lavik 2012).[5] This scene is thus the visual representation of how these characters are moved rather than movers. Indeed, *The Wire*'s portrayal of the untoward elements of this socio-political situation does

not present Baltimore's problems as solvable in any obvious way and the show portrays a political and institutional reality that seems to be unable to change due to the interrelated problems of different social strata that compound this bleak reality.

The detectives, while trying their best to do their jobs, are met with an institutional logic that runs counter to their professional logic. Their efforts are counterproductively thwarted by the very institution they operate within. They then come to serve an institution that fails to adequately serve the society it is supposed to project. The institution's focus on clearance rates is thus berated for going against the detectives' ambitious efforts that might bring about change. Consequently, this narrative arc is tied in with the synecdochic chess scene in the low rises and the mise-en-scène of the dialogue in the square, which, seen in relation to one another, makes for a rather eloquent way of criticizing the "Olympian" omnipotence of institutional logic.

Patrick Jagoda argues that "oscillating between episodic and serial form, post-1990s programs not only are able more regularly to convey linearly delivered narratives but also can suggest complex communities, cities, and universes that ground social networks" and, mirroring Mittell's analysis, further argues that "*The Wire*'s aesthetic makes sensible associations among its featured social actors and the networks they form" (Jagoda 2016, 105-106). This argument parallels David Bordwell's notion of the network narrative. Bordwell argues that such narratives present characters with converging fates and, he writes, "the very overtness of the converging-fates strategy can make the plot cohere" (Bordwell 2006, 99). In this sense, it is useful to view *The Wire* as a network narrative. Bordwell elaborates his point, switching the term "network" for "multiple-plot", by stating that "[w]hen a multiple-plot brings strangers together, the more that the narration emphasizes their separate lives, the more we expect significant encounters among them" (Bordwell 2006, 99). However, where a series like *Heroes* (2006-2010) is almost teleological in how it sets up different narrative lines that the viewer will expect to cross at some point, it is a different case with *The Wire* where the networked structure is presented more as a side effect to the show's sociological gaze; its network is systemic in its sociology but not neatly systematic in its narrative structure. A perhaps particularly poignant scene in this respect is when Major Bun-

ny Colvin and drug addict Bubbles happen upon each other at the site of the former Hamsterdam project, sharing thoughts about whether Hamsterdam had been a good thing (3.12).

Systemic Logic

As Kinder rightfully notes "an urban focus doesn't guarantee a systemic analysis" (72). Kinder also stresses that it is the viewer's emotional engagement with the show's characters that makes the viewer care about these issues (76); in doing so, Kinder zeroes in on a key aspect of how the politics of *The Wire* is directly connected to its aesthetic appeal. For with *The Wire* it is important to distinguish between a societal criticism and a systemic one. Whereas the former refers to the broad scope that such a criticism advances, the latter term refers both to the breadth of scope as well as an interrelatedness of seemingly disparate elements, and considering how *The Wire* tries to tie both deindustrialization, the war on drugs, as well as political culture to the living conditions of urban dwellers, the show's criticism is surely a systemic one. At one point, Bill Rawls lectures McNulty about the importance of so-called clearance rates, i.e. a quantitative way of measuring the effectiveness of the police force (1.6). Making clearance rates the guiding principle for police work hints at how a political focus on accountability and measurability affects the priorities of law enforcement, which, the viewer is called to understand, is to the detriment of the important case that McNulty is working on at this point in the series. And because the viewer is aligned with McNulty rather than Rawls the show is very clear in whose point of view the viewer is to side with. Donald T. Campbell, the American social scientist, once described how measures created to ensure a positive outcome of a public institution's efforts can have directly adverse effects. In Campbell's words:

> The more any quantitative social indicator is used for social decision-making, the more subject it will be to corruption pressures and the more apt it will be to distort and corrupt the social processes it is intended to monitor (Campbell 1976, 49).

The problem that Campbell identifies here is all but a precise mirroring of the criticism *The Wire* presents, i.e. the conflict that can

arise in the interplay between people trying to live up to the overall mission of the institution and how that work is measured and consequently (mis)managed and how quantitative ways of monitoring police work can, in effect, "distort and corrupt" the very work that it was intended to improve upon. The issue that is at the heart of Campbell's objections is that, faced with certain quantitative social indicators such as clearance rates, the police force is barred from living up to its overall purpose.

In the simplest of terms, the overall purpose of a police force is to prevent and solve crime just like the overall purpose is to socialize and teach children to their best of the school's ability. The criticism that Campbell and *The Wire* point to, however, is that certain measures within these institutions encumber such functionality. In *The Wire*, the overall purpose of public institutions is undercut by certain measures that originally were supposed to assist the institutions in living up to their intended purposes. Film scholar Linda Williams points to how episode 4.1 contains "an intricate cross-cut of very short beats comparing a PowerPoint presentation given to teachers with a PowerPoint presentation given to police" which to her is a way of suggesting how similar the challenges that these institutions face are (Williams 2014, 71). The quantitative logic of measuring, however, effectively redirects the efforts away from the highest of goals to goals which are more easily measurable. As a consequence, the efforts of a public institution are directed not at their overall objective (i.e. teaching kids and solving crimes), but are rather aimed at living up to the measurements which have been imposed by a political logic. As Lawrence Blum correctly notes "[t]he rules of the institution are constantly at odds with constructively addressing any of the issues with which the institution is meant to engage (crime, education, governing the city)" (NP). This logic is what so frustrates McNulty in the above mentioned scene, and which also frustrates Pryzbylewski in season four when working at Edward Tilghman Middle School. The way that season four introduces the school system as a main setting serves to illustrate how educational institutions, police enforcement and social realities are interrelated and to draw this connection is very important for *The Wire*'s systemic analysis.

Scope

This political portrayal of networked institutions thus ties in with *The Wire*'s centrifugal complex narrative format, which, when seen as whole, presents a general and ambitious social portrayal whose scope, incidentally, is broader than much academic research. Sociologists Anmol Chadda and William Julius Wilson argue that part of *The Wire*'s accomplishment lies in how it "demonstrates the interconnectedness of systemic urban inequality in a way that can be very difficult to illustrate in academic works," which tend to focus on in-depth analyses of individual factors which are only "implicitly understood among scholars" as being intertwined (Chadda & Wilson 2011, 166). In contrast to such approaches that aim at understanding different social ills, the scope of *The Wire* is thus to be seen as an ambitious *synthesis* that examines the intertwined and networked nature of these different phenomena. Historian Robert Rosenstone argues that film excels at showing historical developments as "a process of changing social relationships in which political, personal, and social questions and categories are interwoven" (i.e. not examined separately) (30) and though *The Wire* is neither a historical drama nor a film, this long serialized narrative excels superbly in showing social connections. As such, it is through its format as a sociological network narrative (a *formal* trait), that *The Wire* successfully demonstrates its *political* point of showing "the interconnectedness of systemic urban inequality" as Chadda and Wilson put it (Chadda & Wilson 2011, 166). In a classroom discussion on drug dealing, middle schooler Zenobia stresses this relationship when she says "[w]e got our thing, but it's just part of the big thing" (4.8), which is also the epigraph of that episode. To Zenobia "the big thing" is probably the drug game but – through the use of dramatic irony - the viewer understands "the big thing" as the entire socio-economic structure that shapes the lives of the students of *The Wire*'s fourth season.

Television scholars Murray Smith and Jason Mittell argue that by following certain characters more than others, viewers gain *attachment* and *access* to these particular characters and when both of the elements are in place viewers may come to feel *aligned* with and even *allegiance* with said characters (Mittell 2015, 129-134). Mittell defines the latter term as "the moral evaluation of aligned characters such that we find ourselves sympathetic to their beliefs and

ethics and thus emotionally invested in their stories" (134). Drawing on Murray Smith and Jason Mittell, one could argue that when these characters (that the viewer is aligned with) explicitly criticize the institutional logic, the show is, in effect, inviting the viewers to see things from the perspective of these police officers. In keeping with Mittell's terminology, it seems that the viewer's allegiance with, e.g., Kima Greggs and Lester Freamon is the textual feature that invites the viewer to align his/her point of view with that of the Major Crimes Unit and, in turn, calls for the viewer to see the institutional logic as a destructive element in the storyworld of *The Wire*.

A Form of Politics

But how does all this answer the question of how *The Wire* expresses its politics; i.e. the issue that arises from being a political serial that calls for change but which presents a situation as all but unalterable. When Omar dies he is replaced by Michael and when Bubbles cleans up Dukie is just the next addition to the 'dope fiends' as Bubbles would say (Nannicelli 2009, 201). When the Barksdale organization crumbles the void is filled out by Marlo. Similarly, the idealistic mayor Carcetti is faced with the harsh reality that the role of the mayor is to "eat shit" and not really change anything as his predecessor tells him (4.7). Though these observations could be seen as justifying Dreier and Atlas's criticism that *The Wire* is defeatist, I believe it is more productive to view this as part of *The Wire*'s argument that incremental reform will not suffice in this situation.

Overall, the series is more prone to point out problems and try to influence opinions by creating sympathy for various groups of people rather than forwarding concrete solutions but *The Wire*'s circular logic of social reproduction nonetheless shows how it seems impossible to change one thing, say the schools, without attending to unemployment, loss of jobs, and the war on drugs *at the same time*. Jakob Isak Nielsen rightly notes that the serialized format of *The Wire* is integral in presenting the individuals as being fixed in structures. He also argues that if one were to adjust something at one point in this circuit it would influence the state of affairs at another point in this circuit (Nielsen 2012, 86-87), but I argue that this "circuit" is structured in a way that probably makes it very difficult to change anything at one point in the circuit as these different phe-

nomena are structured in a way that ensures that this state of affairs reproduces itself. It is a gridlocked situation.

Due to the networked roadblocks that keep this untoward system in place, it follows that the *systemic nature* of this situation is at the heart of the problem. It would go against the politics of *The Wire* to suggest that the source for a positive change is adequately powerful to change things in the current situation. Positive forces are indeed there – Bunk, Kima, Colvin, Carcetti, Waylon, Cutty etc. – but with them being overpowered by their institutions as they are, the show's politics rejects the notion of a positive outlook; i.e. "it is all going to work out eventually."

Because in the networked narrative format that *The Wire* embraces so fully, viewers get to see how social catastrophes are interconnected and in this sense we see both cause and effect of a great many plotlines. This textual feature is, by extension, intricately connected to the social portrayal that *The Wire* puts forth. As such, it can hardly be overstated how much the formal choices found in *The Wire* are connected to its politics. In most episodic police procedurals the viewer is only privy to the information that has to do directly with solving a crime – not what the background of the crime is. In *The Wire*, however, "the "social factors" excluded from most procedurals are promoted to centrality" (McMillan 2009, 53). It is because *The Wire* is presented as a form of sociological network narrative that it presents the viewer with *both* cause and effect in a way that sets this show apart from more traditional forms of police procedurals. In this serialized narrative, the viewer is presented with both the effects of institutional mismanagement at the street level but also how and why this institutional logic is reproduced politically, which is a key element in season 3. It is in this sense that the show's politics stresses the point that, at a basic structural level, the institutional realities are so crippled that what is needed is a *systemic* change.

That *The Wire* is interested in making a case about systemic violence and not individual cases is something that is suggested rather subtly in the very first scene of the series, which, then, comes to stand as a form of mission statement for the ensuing series (1.1). In this scene, McNulty is talking to a witness in order to figure out why a young African American nicknamed Snot Boogie has been killed. With a police officer trying to get information from a witness,

the sound of sirens, a murder victim lying on the street and the bluish lights from police cars, the scene invokes many of the classic, generic elements of a police show and the viewer would not be completely off the mark if she expected that the ensuing narrative would follow a police investigation focused on finding and trying Snot Boogie's murderer. But no. There is no further mention of Snot Boogie and in this sense the opening scene invokes the elements of the police procedural – with its focus on guilt and blame – but the ensuing narrative omits the investigation of Snot Boogie's murder. As such, the dialogue and mise-en-scène of the opening scene suggests that the show is a crime case – but not about an individual case.

Learning that the murder victim, Snot Boogie, had been known to repeatedly steal the pot at a craps game, McNulty asks his unnamed witness why they would continue to let him play. The witness replies: "Got to. This America, man." The case that *The Wire* investigates is thus not the case of Snot Boogie but in the exact words "*This* America, man." Not another America, but the one found in ghettos of Western Baltimore. Linda Williams argues that this scene suggests that "the solution to an individual crime, such as "who shot Snot,"" is not the real point of the episode. Rather, "*The Wire* is on the trail of a much larger crime than street-level homicide. That crime is the failure of American social justice" (Williams 2014, 85-86). That reading follows how Snot Boogie stresses the second word of the sentence. However, copula deletion, a characteristic feature of African American Vernacular English (Trotta & Blyahher 2011, 21-22), is used for maximum effect as the omission of the verbal phrase allows for this potently ambiguous statement in terms both (1) invoking America as both a spatial category with *several Americas* and, as Williams argues, (2) America as "both a place and an idea" (Williams 2014, 84-85). The opening scene, then, works as a political method statement for the scope of *The Wire*'s social diagnosis and thus serves as an inkling of how it will look to examine the roots of "This America".

Exit

It then follows that there really is a point to *The Wire*'s bleakness. That bleakness is inherent in its politics – had it been more hopeful it would betray the systemic character of its societal criticism. Frequently drawing on Greek mythology and other canonical figures

from literary history, David Simon often contextualizes his work on *The Wire* as being parallel to or in opposition to other narrative formats and writers and in this seemingly off the cuff remark below from a 2007 interview conducted by David Mills, Simon uses the genre of the western to discuss the power of the individual in relation to structures:

> "The Wire" has not only gone the opposite way, it's resisted the idea that, in this post-modern America, individuals triumph over institutions. The institution is always bigger. It doesn't tolerate that degree of individuality on any level for any length of time. These moments of epic characterization are inherently false. They're all rooted in, like, old Westerns or something. Guy rides into town, cleans up the town, rides out of town.
>
> There's no cleaning it up anymore. There's no riding in, there's no riding out. The town is what it is (Simon in Mills 2007).

The bleak outlook of *The Wire* is thus related to how 'the town' is all there is. In the systemic logic of this television serial, all the characters are interlocked within institutional constraints which stop them from really affecting change on their surroundings. Simon's mention of "epic characterization" seems to speak to how characters on *The Wire* do not transcend their surrounding environment; they do not rise above it. What Simon thus implicitly argues is how *The Wire* is consistent in its systemic analysis. Thanks to *The Wire*'s interest in social ills and its focus on class as an explanatory category, some critics likened the show to novels of Charles Dickens, which, however, to Simon "fell badly on us."[6] In Simon's view, Dickens "would make the case for a much better social compact than existed in Victorian England, but then his verdict would always be, "[b]ut thank God a nice old uncle or this heroic lawyer is going to make things better." In the end, the guy would punk out" (Simon in Pearson 2012, NP). Simon is thus saying here that Dickens was not consistent in the societal criticism that he otherwise presented in his novels; his plotlines would eventually create more hopeful ending which, Simon's suggests, actually wound up undercutting his political argument.

In this sense, it becomes clear why it is important that *The Wire* paints such a bleak picture, for if there were a potentially redeeming element in this defunct system, viewers would be invited to believe that the potential for improvement was already embedded in the current state of affairs. And *The Wire* avoids letting the viewer think like that. So in this sense, Dreier and Atlas are correct in their characterization of *The Wire*, but I believe that they nonetheless miss the purpose of why *The Wire* paints such a bleak picture in this particular way. Because had it been a more uplifting and redeeming story, the systemic nature of its societal portrayal would fall away and then the show would, in Simon's words about Dickens, "punk out", i.e. not embrace the logical consequence of the politics it espouses. So because *The Wire*'s portrayal of society is marked almost solely by *reproduction* at an institutional and structural level, its call for *change* seemingly becomes almost paradoxical or quixotic. But it is precisely in doing so that it remains argumentatively consistent in its call for change. The show's "bleakness", then, is thus at the very heart of *The Wire*'s call for a paradigmatic, political shift. So while Kinder correctly identifies the systemicness of *The Wire*'s criticism she does not connect it to the bleakness that Dreier and Atlas point to, yet it is only by tracing how these two textual elements are connected that one sees that this is the way that *The Wire*'s social criticism achieves a coherence and consistency in its argumentation. *The Wire* is not a flawed call for change; on the contrary, it remains consistent in arguing that such change must address the systemicness of the current situation.

References

Andersen, Tore Rye (2012) "Judging by the Cover" in *Critique*, 53:3, 251-278.

Blum, Lawrence (2001) "B5 – it got all the dinks": Schools and Education on 'The Wire' *Dark Matter*, 4. http://www.darkmatter101.org/site/2011/04/29/b5-it-got-all-the-dinks-schools-and-education-on-the-wire/

Bordwell, David (2006) *The Way Hollywood Tells It. Story and Style in Modern Movies*. Berkeley, CA: University of California Press.

Campbell, Donald (1976) *Assessing the Impact of Planned Social Change*. Hanover, NH: Public Affairs Center, Dartmouth College.

Chadda, Anmol & Wilson, William Julius (2011) ""Way Down in the Hole": Systemic Urban Inequality and *The Wire*" in *Critical Inquiry*, 38, 164-188.

Coates, Ta-Nehisi (2008) "The politics of The Wire (again)" *The Atlantic*, Dec 8. https://www.theatlantic.com/entertainment/archive/2008/12/the-politics-of-the-wire-again/6371/

Crosby, Joanna (2013) "This Ain't Aruba, Bitch" in *The Wire and Philosophy: This America, Man*. Chicago: Open Court.

Dreier, Peter & Atlas, John (2009) "*The Wire* – Bush-Era Fable about America's Urban Poor?" in *City & Community*, 8(3), 329-340.

Hornby, Nick (2007) "David Simon" *Believer Magazine*. http://www.believermag.com/issues/200708/?read=interview_simon

Jagoda, Patrick (2016) *Network Aesthetics*. Chicago: University of Chicago Press.

Kinder, Marsha (2012) "Rewiring Baltimore: The Emotive Power of Systemics, Seriality, and the City" in The Wire. *Race, Class, and Genre*, (eds. Liam Kennedy and Stephen Shapiro). Ann Arbor, MI: The University of Michigan Press, 15-32.

Lavik, Erlend (2012) "Visual Style in *The Wire*" at *Vimeo*. http://vimeo.com/39768998

Lavik, Erlend (2014) *Tv-serier:* The Wire *og den tredje gullalderen*. Oslo: Universitetsforlaget.

Lister, Michael (2015) " "It's all in the game" *Citizenship as the "Missing Middle"* " in The Wire *and America's Dark Corners: Critical Essays* (eds. Arin Keeble & Ivan Stacy). Jefferson, NC: McFarland & Company, Inc.

Love, Chris (2010) "Greek Gods in Baltimore: Greek Tragedy and *The Wire*" in *Criticism*, 52 (3&4), 487-507.

McMillan, Alasdair (2009) "Heroism, Institutions, and the Police Procedural" in The Wire*: Urban Decay and American Television*, (eds. Marshall, C.W. & Potter, Tiffany). London: Continuum.

Mills, David (2007) "Q&A: David Simon" at *Undercover Black Man*, January 22. http://undercoverblackman.blogspot.dk/2007/01/q-david-simon-pt-1.html

Mittell, Jason (2015) *Complex TV: The Poetics of Contemporary Television Storytelling*. New York: New York University Press.

Nannicelli, Ted (2009) "It's All Connected: Televisual Narrative Complexity" in The Wire*: Urban Decay and American Television*, (eds. Marshall, C.W. & Potter, Tiffany). London: Continuum.

Newman, Michael Z. (2006) "From Beats to Arcs: Toward a Poetics of Television Narrative" in *The Velvet Light Trap*, 58, 16-28.
Nielsen, Jakob Isak (2012) "Tv-serien som vor tids roman?" *Passage*, 68, 83-100.
Pearson, Jesse (2012) "David Simon" *Vice Magazine*, 12 September: https://www.vice.com/read/david-simon-280-v16n12
Rosenstone, Robert (2000) "Oliver Stone as Historian" in *Oliver Stone's USA*, (ed. Robert Toplin). Lawrence: University of Kansas.
Schelstraete, Jasper & Buelens, Gert (2013) "This Game is Rigged": Dickens, *The Wire* and Money" in *Dickens Quarterly*, 30 (4), 288-298.
Trotta, Joe & Blyahher, Oleg (2011) "Game done changed: A look at selected AAVE features in the TV series *The Wire*" in *Moderna Språk*, 105 (1), 15-42.
Vest, Jason P. (2011) The Wire, Deadwood, Homicide, *and* NYPD Blue: *Violence is Power*. Santa Barbara, CA: Praeger.
Williams, Linda (2014) *On* The Wire. London: Duke University Press.

Notes

1 To Mittell, *The Wire*'s *centrifugal* form of complexity stands in opposition to the *centripetal complexity* of *Breaking Bad* in which a focus on a single, central protagonist works to "create a storyworld with unmatched depth of characterization" (Mittell 2015, 223).
2 "Hvis narrativt komplekse TV-serier inviterer oss til å innta rollen som amatørnarratologer, kan vi si at *The Wire* inviterer oss til å innta rollen som amatørsosiologer."
3 See Nielsen 2012 for a comparison of the contemporary television serial and the novel.
4 Joe Trotta & Oleg Blyahher explain that "Non-standard subject-verb agreement is a typical aspect of AAVE [African American Vernacular English] which is frequently used in *The Wire*" and they even use this very line by D'Angelo to illustrate that point (Trotta & Blyahher 2011, 20).
5 Other than Lavik's video essay and the present essay, at least eight other peer-reviewed publications refer to Simon's paratextual comparisons with Greek mythology – and that does not even consider the journalistic comparisons: Etheridge 2008 (155), McMillan 2009 (50), Sheehan & Sweeney 2009 (NP), Love 2010, Vest (173), Crosby 2013 (7), Williams

2014 (4), Lister 2015 (69). It thus seems clear that this statement – this authorial paratext – seems to have made its mark in terms of framing the discussion about *The Wire*. Tore Rye Andersen (2012) has traced how there is a circuit where – in his example literary – works are discussed in a way that is affected by such authorial paratexts. He shows how a work subsequently is read through a cultural context that is, in part, constructed by the creator of the work, or, in the case of film and television series, one of the creators. With paratexts functioning as thresholds, i.e. a certain vantage point from which viewers and critics engage with texts, it is important to note that this is, in fact, a possibility and moreover one needs to acknowledge how this may come with certain perils; i.e. that criticism may mirror the paratextual analytical remarks made by any number of creators rather than engage in a critical examination of the text in question. In any case, this methodological issue is one that the critic must be aware of and not overlook the chance that s/he merely parrots paratextual claims.

6 See also Schelstraete & Buelens 2013 for a discussion of *The Wire*'s relation to Dickens. Interestingly, David Bordwell notes that Dickens' 1864-65 novel *Our Mutual Friend* is also structured as a network narrative (Bordwell 2006, 100).

akademisk kvarter
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Volume 15. Autum 2017 • on the web

Networks as a case of distributed cognition

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Abstract

Within the development of recent theories of epistemologies, notions of situated, embodied, extended and distributed cognition has been objects of study. Cognition is here seen as instantiated within different relationships, or networks, obtaining among humans and the world. However, what is shared by participating in a network is seldom addressed. This article will analyse and sketch the possibility of understanding a cognitive network, exemplified by a crime scene investigation, involving shared cognition understood as *distributive ampliative cognition.*

Keywords macrocognition, CSI, distributive ampliative cognition, material inference

Introduction

This article will analyze networks as involving distributed social cognition, and will base this description on the development of the extended mind approach. Overall this approach focus on the contribution to cognitive processes by structures and things external to the mind (Wheeler 2005; Robbins and Aydede 2009). Thus, net-

works can be characterised by distributed cognition, e.g. humans and non-human artefacts like mobile phones are related through central cognitive processes being distributed among them. Recall that not long ago remembering phone-numbers was a distinct and important everyday discipline. Presently, however, all of this mind-consuming behaviour has nearly been off-loaded to everybody's respective smart phones replacing what was done in the mind before. The mind is, in Clark and Chalmers memorable phrase, extended (1998), with objects in the environment sometimes functioning as part of the mind. Though this is similar to developments within sociology (see Latour 1995; Hutchins 1995, 1995a) and anthropology (see Ingold 2000), the limited space of this article prevents the engagement with these other developments. Instead the purpose of the article is addressing how participating in a network is committing to something macrocognitive, involving a normative relation between a communality both presupposed and projected. The aim is describing this commitment as involving a specific ampliative inferentiality. First, I will present a short history of the extended mind hypothesis locating a problem in understanding what we actually share when we partake in a distributed process. Next, I will use a crime scene investigation for addressing this problem. This will lead to some criteria for understanding the distribution, and lastly, a sketch of networks as a case of distributed cognition involving ampliative inference will be made.

A short history of the extended mind hypothesis

Following Cash (2013) the extended mind hypothesis comes in three phases. The first phase is Clark and Chalmer's original position (Clark and Chalmers 1998), claiming that certain objects separate from us nevertheless function as part of our cognition, i.e. the environment has an active role in driving cognitive processes. Clark and Chalmers argued for this stating the parity principle claming:

> "If, as we confront some task, a part of the world functions as a process which, were it done in the head, we would have no hesitation in recognizing as part of the cognitive process, then that part of the world is (so we

> claim) part of the cognitive process. Cognitive processes ain't (all) in the head!" (Clark and Chalmers 1998, 8)

Thus, since there is a functional similarity or equivalence between remembering a phone number in the head and by using the phone, the phone counts as part of the cognitive process. Obviously, processes "in the head" function as paradigm for what cognitive processes are, and as Cash claims (2013, 62) this creates an individualist point of departure for Clark and Chalmers. In addition, the parity principle seems to imply the limitless of extending my cognitive processes. They could, in principle, involve every person I talk to, every book I read and multiple internet sites I visit, etc. on equal footing.

The second phase, related to Menary (2010, 227-243), tries to limit the extension of the mind, claiming that the external processes doesn't duplicate processes that could take place in the head, instead they complement or integrate with the cognitive processes of the mind. Thus the cognitive system has a boundary including only those external resources forming an integration with the internal process. Here the mobile phone is not part of my extended mind, but the phone augments the mind so both become an integrated whole – it complements my remembering. The problems here are, first, this is still is an individualist way of understanding the cognitive process. How a group of people could be augmented by technological devices, for example in a multiplayer computer game, would, if it was touched upon, probably be described as an aggregation of the people involved. But the group, as a category in itself, might display other characteristics when augmented, characteristics not capable of being modelled on the augmentation of an individual. Second, the mobile phone is severed from the cultural practices in which it is used, hence as Cash (2013, 63) claims, attention to the social and cultural aspects of distributed cognition is bypassed.

The third phase, therefore, emphasizes these social and cultural aspects. One example here is Gallagher's (2013) focus on the institutional character of distributed cognition. His example is the legal system forming a system of individuals, tools and cultural practices. This way, it enables cognitive processes to emerge, for example decisions in particular court cases, impossible without the engagement between the institution and the individuals who are connect-

ed with it. For Gallagher (2013, 7) this goes beyond the parity principle, because the legal system as a case of distributed cognition could not, even in principle, be done in one or two person's heads. Rather, the individual cognitive actions are both derived from and contribute to the cognitive and normative practices making up the legal system which we collectively partake in.

Now the problem here is, how this normative process of contributing to something we partake in actually happens. How can the process be both shared and distributed, hence more than what is happening in either of our heads, but at the same time something individuals *as* the individuals they are, can contribute to? In the following a crime scene investigation will be used as an example for discussing this question.

CSI as an example of distributed and macrocognition

Crime scene investigation is a particularly interesting case since it involves cognition on many levels and displays many, if not all, of the characteristics presented above. Departure here will be Baber *et al* (2006) and Christensen (2013) showing the distributed nature of a crime scene investigation, and expressing a sort of macrocognitive process. Let the murder scene taken from Christensen (2013, 67) be an example: a body has been found on the floor in an apartment, the carpet around the body's head is soaked in blood coming from what looks like an open wound, an empty purse and a wine glass lie on the floor, and drawers are open with clothes scattered around. Ostensibly this is a robbery turned into a murder crime scene, which the CSI documents by correlating different kinds of representations of the crimes scene.

The overall process of a crime investigation can be described through, first, a crime scene being reported, second, the apprehension of a perpetrator or the investigation of all other lines of inquiry, and lastly, the crime being filed. Baber *et al* (2006, 357-358) outlines the following sequence of events as most likely taking place:

1. "Crime committed, crime reported, incident created.
2. Scene investigated, evidence retrieved.
3. Offender caught or identified and charged.

4. File compiled by File preparation, receive all information on the enquiry, from the Police: Witness statements, Crime Scene notes, Forensic reports, etc.
5. File sent to CPS (the persecution service), decision made whether to prosecute.
6. Decision made to continue, file made available to defence barrister.
7. Defence or prosecution may request additional examinations during the course of the trial.
8. All information, used and unused should be made available and declared using an "unused evidence" form (submitted with the statement).
9. CSI, Police, etc. are requested to submit a statement of actions to the court.
10. On some occasions if counsel has questions concerning the evidence they will call the witnesses to court, along with the relevant evidence."

Differing people and things are here involved in specific actions taking place on different locations, but still with an interconnectedness appearing. First, policemen arriving at location, judging what occurred, and requesting the crime scene investigators to arrive. The CSI then documents the crime scene taking pictures, collecting and recording evidence, decide additional investigations, and finally disseminate the evidence to the next link in the investigative chain, the prosecutor's office (CPS). They prepare and eventually go to trial making a case against the defence barrister, persuading the court of the alleged offender's guilt. Important to notice here is:

First, each link in the investigative chain is dealing with the world in an engaged and committed fashion. The CSI team, for example, knows how different kinds of evidence collected at the crime-scene are not only properties of the crime-scene, but express also a certain propriety, i.e. they afford being placed within proper crime technological and judiciary justifications, what Thevenot (2007, 411) terms an order of worth, a specific evaluative inferential space. Hence, the collected evidence function as material inferential resources for action, both in a physical sense of picking up and bagging the crime-scene purse in the example above for additional DNA and fingerprint searching (Baber *et al,* 358-359), and in a more communicative

sense by creating different representations of the actual and possible role of the purse by taking pictures and notes entering into the final crime report (Baber *et al* 2006, 363; Christensen 2013, 64-65).

Second, the work done by each link in the investigative chain serves purposes transcending their specific investigative and contextual behaviour, by projecting the knowledge procured onto the good of the investigative communality as a whole (Thevenot 2007, 418). The purpose of the CSI team, for example, is not only documenting the specific crime scene, but also being part of grander purposes, like cooperating for finding the guilty or establishing new criteria for crime scene investigation.

Combining both points each team or link is organised around, or held together by, a specific crime scene case as *presupposing a sense of communality*: each team knows how to align their efforts with the other teams: documenting evidence must be made in such a way it can be used by the prosecutor in court, and the prosecutor makes his case using the specifics of the different representations of the crime scene investigation. In addition, each team is also working towards *establishing a sense of communality*: making the best possible case in accordance with the purpose of a joint macrocognitive effort, i.e. realising the investigative communality as a whole, but always facing the uncertainty of not necessarily being successful. Hence, the ongoing experience this joint effort provides is not necessarily frictionless. The knowledge procured need not be based on straightforward conditions among the members of the different teams: instruments might be calibrated in wrong ways, evidence might not be found or might be understood in the wrong way, and people might work against each other without necessarily compromising the investigation as a whole, etc.

Furthermore, as List and Pettit (2011) has argued regarding decision making through a sequence of events, the decisions made by each party in the investigative process and on a macrocognitive level might be different, the latter even going against the recommendations or interpreted findings of all the parties in the investigative chain. As a relevant example of this, Lackey (2014, 2-3) describes a murder trial where "Each member of the jury is privy to evidence that the defendant was seen fleeing the scene of the crime with blood spatter on his clothes, but it is grounded in hearsay that, though reliable, was ruled as inadmissible by the judge." Thus as a

group the jurors believe the defendant is innocent, but *individually* many of the group members do not, since they trust the reliable hearsay evidence. Hence, as Ballet *et al* (2006, 380) claims, without elaborating upon though, inquiring into what is shared by participants across the investigative chain is highly relevant. So how are we to understand this dynamic not necessarily harmonious macrocognitive communality shared, i.e. both presupposed and projected, by the CSI and CPS?

The challenges of macrocognition

Before indicating how this sharedness could be understood, let us *via negativa* and based on the example just described, provide some plausible criteria for how this sharedness ought to be characterised. First, one obvious understanding of this macrolevel should be bypassed, namely that it is made up of one or more people representing all the people involved as well as the result of their total effort – *the no singular representation thesis*. In this sense, the CPS (the prosecutors) represents the effort of all people involved in making the case, and manifest thereby the definite prosecutorial authority of the judicial decision-making as a whole. The problem here is, obviously, that this ignores the network of relations and many different representations serving as the conditions for the prosecutors to function in the first place. Hence, the notion of a group, or collective comprising this macrolevel is not addressed in a serious manner. Put more bluntly, it simply bypasses the communality in question, i.e. the macrolevel is nothing but a single representation of the concerted effort of the involved parts. Now certain forms of network might function like this, or aim to, for example religious groups with powerful leaders, but in the case above this seems somewhat nebulous.

Related to the singular representation thesis is what we might call *the non-aggregation thesis*, a group is not equal the sum of its members (see Lackey 2014, 2). This is one consequence of the examples by List, Pettit and Lackey presented above, that what happens on the macrolevel can be divergent from what happens in each of the parts making up the macrolevel. Take two people walking down the street, most people will claim a difference between walking together and walking beside each other, despite the physical appearance can be identical. So to put it another way, the macrolevel, two people walking together, cannot be reduced to the aggrega-

tion of its parts, i.e. walking beside each other (Gilbert 1990). Hence, the team-effort of both the investigative and prosecuting team is more than the sum of the individual members' respective effort, thus we say they work together and not just with each other. Even if we supply their individual efforts with some sort of descriptive common knowledge like knowing how to collect and interpret evidence in such a way to be best transferable among the links, this still doesn't capture the exact sense we are looking for. First, because it is still adding up, and second, a substitute with the same training could do the same job without really being part of the collective. Third, there is something engaging and compelling about working or walking together, not captured in sharing some piece of common knowledge. A group is not a property of individuals only, but a propriety in its own right. Hence, there is a normative dimension to being part of a group not captured by just postulating some shared common knowledge. At least not without understanding how this knowledge is committing in a proper sense.

Lastly, the *no reification thesis* that even if we grant that the macrolevel is different from each individual part connected to it, we cannot reify this macrolevel as something separate from the parties involved, like a group mind (see Schmid 2009; 2011). Saying "We solved the crime" this "we" is not something over and above the parties involved but must, in a meaningful way, be ascribable to each of the parties involved in their own distinctive ways. The CSI uttering the sentence enacts a partaking of this we in a different manner than the prosecutor, thus "we" means partaking in something bigger than each party but in their specific ways.

Now meeting these challenges seems to indicate that what is shared is not only distributed but also of an ampliative nature, it presupposes a relation to a non-reified communality extending beyond the distributed parts. Using Robert Brandoms' notions of material inferentiality and normative pragmatics, will provide a first preliminary sketch of this sense of ampliative.

Macrocognition as distributive ampliative cognition

Etymologically ampliative comes from latin *ampliatio* connoting a sense of broadening, enlargement or exceeding of something already existing or known (Will 1988), and has been used within philosophical logics since medieval times. Important precursors in-

volve *inter alia* Immanuel Kant's notion of synthetic judgment, where the act of predicating implies some piece of objective knowledge is *added* to our knowledge of something. An addition which below will be understood as understanding what it is one commits oneself to by using a concept (predicating is using a concept *of* something, placing it in an inferential space of implications) This is, for Kant, in contradistinction to the analytical judgment where the predicate merely describes what is already implicit in a subject. A second example is C. S. Peirce who in his studies on abductive reasoning claimed that the conclusion in certain forms of inductive inferences, like concluding from some x are y to all x are y, exceeds the content of the premises. Hence, concluding has more a character of an informed generalisation than a strict logical validity. In the CSI-case this would be uncovering the best account of the evidence in each link (like the premises), and *projecting* this onto the common good of the investigation (the conclusion). So *ampliatio* indicates the combination of presupposition and projecting in the sense described above.

Now the kind of reasoning involved in our case study can hardly be understood or described as a pure formal logical process, instead it contains relationships and dynamics between people and things which cannot be formalised without losing the significance of these dynamic relations. Thus, the notion of ampliative cognition involving a certain kind of inferentiality might seem misplaced. However, I will present Brandom's non-formal notion of material inference understanding inferring as a kind of correct doing (his normative pragmatics) a inspiration, but without doing a fully justification to his complex thought[1] (Brandom 2000, 52-55). This is congruent with our case and the challenges above, and will contribute to our understanding of the sense of adding or enlargement, ampliative implies.

An example of a material inference would be inferring from "Aalborg is north of Odense" to "Odense is south of Aalborg". Brandom (2000, 53) claims that no specific logical competence is involved in this kind of inference, instead knowing how to use the central concepts of the sentences, and especially how the *content* of north and south is related to the world of Danish geography, is what matters. So we are dealing here with non-formal kinds of reasoning, expressing an engagement with the world (people and things), expressed

through communication (see above, page 4). Now imagine the complexity of material inferences related to the CSI at the crime scene. Understanding "This glass is a piece of evidence", relates both to the contextual procedures of the different people processing the crime scene: asking questions like was it used for drinking, and acting like bagging and labelling which is communication to the laboratory etc. Hence, it relates to the next link in the investigative chain: if this glass is evidence, then the DNA analytics want us to handle it this way and they, then, handle the evidence in a form suitable for court hearings. As soon as the glass is denoted evidence, it is placed within a web of material inferential relations acting as a compass for what to do, and not to do, and how people relate to each other. The glass, so to speak, structures how the people are supposed to act around it, both in terms of concrete handlings and in terms of how other related concepts are used – lipstick on the glass is transformed from an everyday nuisance to investigative significance of who put it there. So the inferentiality here is not about logical form, it denotes the material connections between the content of the concepts, i.e. the communication, used throughout the chain between the CSI and CPS. Hence, predicating evidence of the glass adds something new to our knowledge of this glass' significance, and by committing to this predication we commit ourselves to the enlarged network of material inferences this glass is then placed in.

Furthermore, Brandom relates this sense of commitment, the inferentiality connected with holding something a piece of evidence with "…the sort of entitlement that is in question when we ask whether someone has good reasons for her commitments." (Brandom 2000, 43). Hence two commitments can be incompatible, e.g. claiming this apple is red all over and green all over, and we can therefore also hold what we later discover as incompatible beliefs, e.g. the suspected felony might actually not be the one who drank from the glass. What we realise upon this discovery is the lack of entitlement holding both commitments; we had the wrong reasons (what we were committing ourselves to through the material inferential relations comprising the glass and the felony) to suspect that the assumed felony was the same person drinking from the glass.

In parallel we can understand how people can contribute to the overall process of convicting the felony, but resist, knowingly or unknowingly, working as a team relating to the different links in

the chain. This can be understood as two possibly incompatible beliefs (commitment to contributing to the overall team effort and commitment towards specific team members), of which we can express worry about the entitlement to both, or eventually discover one of the entitlements as justified.

Either way the inferentiality thus depicted is part of ampliative cognition, creating a connection between presupposing a communality and establishing a new communality described above.

The view on ampliative cognition just presented goes against the singular representation thesis by focusing on the concrete material inferential relations dispersed in the investigative chain. We cannot understand this in an aggregative sense either, because the content of the concepts used is not totally convergent. The content related to using the glass as evidence is, for the CSI team, primarily related to documenting the crime scene (e.g. it is inferentially related to bottles or other containers used for pouring liquid stuff, perhaps poison, into the glass, as well as specific DNA techniques for handling lipstick). The CPS for their part understands the glass as one of many interrelated kinds of evidence, some not from the crime scene itself, building the case as a whole. So what the CSI and CPS do and their understanding of the significance of this doing is related and different at the same time. The material inferential relations making up the content of the glass as evidence are connected but shifts between the two teams as well. Hence, *pace* the reification thesis each part contributes to something bigger in their own specific way, but *pace* a sense of aggregation there is a sense of committing, a normative dimension directed or projected at the whole, being more than the sum of the parts.

So to conclude ampliative cognition holds a significant part of the key to approaching the sense of sharedness sketched. It connects the specificity of the material inferential relations with a sense of wholeness, that what each do is committed to or projected onto a larger sense of saying we.

References

Baber, Chris, Paul Smith, James Cross, John Hunter and Richard McMaster. 2006. "Crime Scene investigation as distributed cognition." *Pragmatics & Cognition* 14(2): 357-385

Brandom, R. 2000. *Articulating Reasons*. Cambridge, Massachussets, London, England: Harvard University Press.
Cash, M. (2013) Cognition without borders: "Third wave" socially distributed cognition and relational autonomy. *Cognitive Systems Research* 25-26: 61-71
Christensen, Bo A. 2013. Mere end repræsentationer i praksis. *Geoforum Perspektiv 23: 57-69*
Clark, A., Chalmers, David. 1998. "The extended mind." *Analysis* 58(1): 7-19. Reprinted in Menary (2010), pp. 27-42
Gallagher, S. (2013) The socially extended mind. *Cognitive Systems Research* 25-26: 4-12
Gilbert, M. 1990. "Walking together: A Paradigmatic Social Phenomenon." *Midwest Studies in Philosophy* 15(1): 1-14
Goldman, Alvin. 1999. *Knowledge in a social world.* Oxford, England: Oxford University Press.
Haugeland, John. 1998. *Having Thought. Essays in the Metaphysics of Mind.* Cambridge, Massachusetts and London, England: Harvard University Press.
Huthchins, Edwin. 1995a. "How a Cockpit Remembers Its Speeds." *Cognitive Science* 19: 265-288
Hutchins, Edwin. 1995. *Cognition in the Wild.* Cambridge, Massachusetts and London, England: The MIT Press.
Ingold, T. (2000) *The Perception of the Environment.* Oxon, England and New York, USA: Routledge.
Lackey, Jennifer (ed.). 2014. *Essays in Collectivist Epistemology.* Oxford, England: Oxford University Press.
Latour, Bruno. 1995. "Cogito ergo sumus! or psychology swept inside out by the fresh air of the upper deck..." *Mind, Culture, and Activity* 3(1): 54-63
List, Christian, and Philip Pettit. 2011. *Group Agency. The possibility, design, and status of corporate agents.* Oxford, England: Oxford University Press.
Menary, Richard, ed. 2010. *The Extended Mind.* Cambridge, Massachusetts and London, England: The MIT Press.
Robbins, Philip and Murat Aydede. 2009. "A Short Primer on Situated Cognition", in Robbins, Philip and Murat Aydede (Eds.) *The Cambridge Handbook on Situated Cognition.* Cambridge, New York: Cambridge University Press

Schmid, Hans Bernhard. 2009. *Plural Action.* Dordrecht, Netherlands: Springer Verlag.
Schmid, Hans Bernhard, Daniel Sirtes, Marcel Weber. 2011. *Collective Epistemology*. Heusenstamm, Deutschland: Ontos Verlag.
Thevenot, Laurent. 2007. "The Plurality of Cognitive Formats and Engagements. Moving between the Familiar and the Public", *European Journal of Social Theory* 10(3): 409–423
Wheeler, Michael. 2005. *Reconstructing the Cognitive World.* Cambridge, Massachusetts and London, England: The MIT Press.
Will, Frederick. 1988. *Beyond deduction. Ampliative aspects of philosophical reflection*. London: Rotuledge
Winograd, Terry and Fernando Flores. 1986. *Understanding Computers and Cognition*. Reading, Massachusetts: Addison-Wesley publishing Company.

Note

1 As Brandom connects his normative pragmatics to a semantics, I would also have to show how ampliative cognition is expressed through communication among the links in the investigative chain, as well as through the projection to a common level. This will involve tracing the expression of inferential connections between us, they, and we in the different speech acts and dialogues among the agents in the network.