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Preliminary arguments for a critical data-driven ethnography in the time of „deep mediatization."

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> … there is a compound, a mixture of two heterogeneous systems whose data cannot be transferred from one to the other. An operational system which is statistical, information based, and simulational is projected onto a traditional values system, onto a system of representation, will, and opinion. The collage, the collusion between the two, gives rise to an indefinite and useless polemic … the situation no longer permits us to isolate reality or human nature as a fundamental variable. The result is therefore not at all any additional information or any light on reality, but on the contrary, because of the fact that we will never in future be able to separate reality from its statistical, simulative projection in the media, a state and of definitive uncertainty about reality.
>
> (Baudrillard 1985: 579-580).

1 Introduction

There is an old Far Side comic strip, which depicts members of an exotic tribe wearing stereotypical grass skirts, nose bones and all. As two men approach their hut, the members of the tribe are seen frantically running around. „Anthropologists! Anthropologists!” they shout, as they desperately try to hide away their TV, VCR, and telephone as if to maintain the performative purity of anthropological subjects untainted by modernity (see Fabian 1983). This comic strip was published in 1984. Since then, the ubiquity of the internet has arguably ingurgitated what may have remained of human activity unmediated by communication technologies – if such a thing ever existed in the first place (see Stiegler 1998; Durham-Peters 1999). Indeed, if we were to update this scenario to the contemporary time of „deep mediatization” (Hepp et al 2017; Hepp and Couldry 2017), what would perhaps be hidden away from the prying eyes of anthropologists would not be analog television sets but powerful smartphones connected to cloud servers where sophisticated algorithms track every aspect of online behaviour to provide detailed insights into what it means to be human at a scale never before imaginable.

I have started with this ironic take on the paradoxes of classical anthropology as this helps illustrate the core problem addressed in this working paper. The problem goes as follows: As more and more human activity has mass-migrated online, this has opened up unprecedented new opportunities for researchers to explore the abundance of „digital traces” left behind by our everyday activities online (see Latour 2007). As Hepp et al (2018) write

> whatever we do, wherever we are, by living in a media-saturated social world we leave behind footprints of our media use that compile an archive of „digital traces.” To some degree we do this consciously; when we upload photographs to or write comments on the timelines of digital platforms, we leave an enduring imprint of our presence there. On the other hand, however, we are often unaware of the process as an (unintended) side effect of our media-related practices. This can be the case, for example, when using a search engine, when reading newspapers online, or when posting on Facebook or Twitter. But the notion of digital traces can extend beyond ourselves: These traces can be produced not just by us but also by others; when our friends, family, or contacts interact online with reference to us, by synchronizing their address books with our digital addresses, or by tagging pictures, texts, or other digital artifacts with our handles, they inadvertently contribute to our own archive of digitally rendered echoes (2018: 439-440).

Yet, at the same time, despite the growing sophistication of especially new computational methods developed to extrapolate insights from this large-scale digital trace data, this has nonetheless not obviated what perhaps remains as one of the most intractable theoretical problems of social science research. That is: *given these statistical trends and patterns that are identifiable from these „digitally rendered echoes" of our online behavior, what do these then „mean" for the people implicated in them (or the researcher trying to interpret them)?* In other words, how do researchers working with large-scale datasets best reconcile this age-old tension between the „two heterogeneous systems" underpinning social science research: one statistical, based on mathematical probabilities, models and simulations; and the other more phenomenological, based on individual value systems, experiences and cultural meanings (Baudrillard 1985)? Much to the chagrin of grand declarations about „the end of theory" brought about by „Big Data" (Anderson 2008), this theoretical double-bind between structure/agency has still not yet mysteriously vanished behind the smokescreen of computational algorithms (see Simmel 1903; Bourdieu 1977; Elias 1978; Giddens 1976, 1990).

Indeed, one way that researchers have tried to mitigate this tension between macro-level structures and individual meanings has been to summon more qualitative approaches to the rescue. In particular, the bread-and-butter of anthropology, the ethnographic method, has been often proposed as one promising way to bridge this chasm between the icy impersonality of large-scale datasets and the *emic* intimacies of people's everyday experiences. Paradoxically, however, while anthropology as a discipline has increasingly shied away from the notion that such cultural „meanings" can (or should be) transparently or unproblematically represented by researchers, this type of interpretive approach to anthropology seems to be nonetheless making a comeback in especially research associated with the technology industry and digital marketing. These new approaches that promote the use of „digital ethnography" as a new way to provide „meaning" or „context" to the use of large-scale datasets thus risk sidelining the more complex philosophical and political questions involved in representing other people – a concern that has been at the center of anthropological inquiry for more than four decades now (see Asad 1984; Hobart 1999).

With this in mind, the objective of this working paper is to explore the theoretical and methodological questions that are raised when researchers combine such deeply qualitative ethnographic approaches with computational methods and large-scale datasets. It will do this in three parts. The first part explores how anthropology as a discipline has adapted to a new situation where the old certainties of face-to-face communication have been disrupted by digital mediation. The second part specifies the argument by providing a self-reflexive analysis of a project where I experimented with the use of digital ethnography with computational approaches and large-scale datasets to explore social media hate speech during the so-called 2015-2016 refugee crisis. The third part concludes with some of the principles of what I call in this paper „critical augmented ethnography" – a tentative working approach that tries to merge the critical sensibility of anthropological ethnography with novel opportunities provided by new computational methods for understanding contemporary digital cultures.

2 Literature review

2.1 Digital anthropology to the rescue

Long-term intensive ethnography has long been the defining method of anthropology. O'Reilly (2005) describes this set of methods as „direct and sustained contact with human agents, within the context of their daily lives (and cultures), watching what happens, listening to what is said, asking questions, and producing richly written account that respects *the irreducibility of human experience*, that acknowledge the role of theory, as well as the

researcher's own role, and that views humans as part object/part subject (O'Reilly 2005: 3; my italics; see also Hammersley and Atkinson 2007). However, as more and more of this „irreducibility of human experience" now takes place online, anthropologists have also had to grapple with the question of what happens to research when this human experience becomes mediated, in one form or another, by digital technology. In one of the earlier articulations of this problematic, Hine (1995), for instance, proposed „virtual ethnography" as one way to transpose anthropological research to situations where the older certainties of face-to-face interactions have been disrupted by digital communication. This, she argues, required researchers to both negotiate the core „assumptions on which ethnography is based" but also the „features which are taken to be special about the technologies concerned (1995: 4)." Other similar approaches such as „netnography" (Kozinets et al 1998), „cyber-ethnography" (Ward 1999) or „trace ethnography" (Greiger and Reibes, 2011) have each, in their own way, reflected on what would be such a distinctly anthropological orientation towards researching the digital environment and, more recently, to a field of research increasingly saturated by algorithms and „Big Data" (see also Murthy 2011; Markham 2013, 2016).

What, then, does such an „anthropological" research approach to this digitally-mediated research environment involve? In their edited volume *Digital Anthropology,* Horst and Miller (2012) propose six principles that differentiate digital anthropology from other types of digital media research:

1. The digital environment does not reduce human cultural diversity but rather increases it (2012: 3);

2. Digital practices need to be approached in relation to earlier offline and cultural practices;

3. Digital anthropology does not rely on pre-existing theoretical frameworks but rather embraces the messiness and complexity of lived experience;

4. Digital anthropology is critical of universal explanations relating to culture and rather embraces cultural relativism and other perspectives „peripheralized by such modernist visions of society (2012: 4);"

5. Digital anthropology embraces the essential ambiguity of all culture, including digital culture;

6. And digital communication should not be seen as fundamentally different from other (earlier forms) of human activity; rather it forms a new substrate of social relationships, which engenders „new opportunities for anthropology to help us understand what it means to be human (2012: 4)."

In the edited volume *Digital Ethnography,* Horst et al (2015) similarly outline what they consider to be the key principles of this new method. In their view, this is informed by five principles that help differentiate it from other types of digital media research:

1. Digital ethnography adopts a *multiplicity of perspectives* that are always „unique to the research questions and challenges to which it is responding (27).

2. Digital ethnography foregrounds *non-digital-centricness* as an approach that decentres media (or media technologies) as the primary foci of research (28). As a result, it does not canonise digital methods but begins instead with the assumption that „these

methods should be always developed and designed specifically in relation to the particular research questions asked (ibid).”

3. Digital ethnography maintains an *openness* towards other disciplines and approaches and „the needs of other disciplines and external stakeholders with which ethnographers might collaborate (30).”

4. Digital ethnography is *reflexive* of the truth-claims it makes and the people it claims to represent. This is to say, such anthropologically-informed ethnographies go „beyond the simple idea of ‘bias’ and ... engages with the subjectivity of the research encounter and the explicatory nature of ethnographic writing as a positive and creative route through which to produce knowledge or ways of knowing about other people, their lives, experiences and environments (31).”

5. And finally, digital ethnographic research is *unorthodox* in nature, often exploring and experimenting with the same tools and technologies that characterise emerging digital cultures (32).”

This ongoing theoretical debates around what differentiates digital anthropology from other research methods exploring „the digital” thus explicitly positions it against more techno-reductionist approaches that foreground technology or digital methods. As a consequence, digital ethnography is usually imagined in stark contrast to the more positivist traditions of quantitative research, such as the emerging field of computational social science, which prioritises universal models, statistical explanations, and reproducible methodologies (see Hilbert 2019). Positioned on the other far end of the spectrum, digital ethnography is instead construed as a more open-ended reflexive practice through which the ethnographic practices of knowledge production are seen in constant negotiation with the worldviews of the people who are researched, often in a fluid, iterative, experimental and collaborative process. *Given these radically different epistemological orientations, the working paper thus asks, can these two potentially theoretically incommensurable approaches ever be reconciled?*

2.2 Digital ethnography is not digital marketing

The sophisticated methodological and theoretical debates about anthropology’s changing relationship to digital technology have primarily focused on the question of how anthropology as a discipline should re-orient itself to research in the new digital environment. The subsidiary question of how digital ethnography as a *research practice* itself needs to adapt to the growing ubiquity of the use of computational methods and large-scale datasets in contemporary research environments remains still relatively untheorized. This question, I argue in this working paper, is now becoming of crucial importance for any social science research interested in contemporary digital media partially because most of the popular proposals being circulated that suggest the use of digital ethnography *together* with so-called „Big Data” methods are now made by applied anthropologists who work for the technology industry or in digital marketing. In her influential article „Why Big Data needs Thick Data,” Wang[1] (2013, 2016), for instance, argues that Big Data needs to be complemented with more qualitative ethnographic methods – or what she calls „Thick Data.” This hybrid approach, she argues, allows researchers to better capture the „incredible depth of meanings and stories” (2016: para 6) that are not accessible through quantitative or computational methods alone. She writes that „Thick Data is data brought to light using qualitative,

[1] Incidentally, she was working as a researcher for the mobile phone manufacturer, Nokia, at the time.

ethnographic research methods that uncover people's emotions, stories, and models of their world. It's the sticky stuff that's difficult to quantify ... Thick Data can rescue Big Data from the context-loss that comes with the processes of making it usable (2016: para 8). Here Wang draws on the work of anthropologist Clifford Geerz and his notion of „thick description" as a popular way that anthropologists use to interpret the „cultural symbols" and „webs of meanings" that constitute human culture (see Geerz 1973).

Curiously, this kind of interpretive approach to ethnography in becoming increasingly popular in online forums and blogposts, applauded for all kinds of miraculous purposes such as understanding „customer's emotional needs" to better connect with them through marketing campaigns (Wright 2018, para 4). In a kind of language that would make many more old school anthropologists cringe, these approaches articulate the role anthropological research in the contemporary media environment in a peculiar way. Baxter (2019), for instance, writes that

> Social anthropology itself has been around since the early years of the 20th Century, during the first era of globalisation when there was a realisation within Europe, that as organisations from the continent traded with countries around the world, there was a need to understand the cultural differences, the way different people thought, about religions, politics and even childhood related differences. There was a realisation that you need to „understand strangers" … and as technology changes the world, we need a framework, a set of tools, to understand the impact on individuals, for example, how to really understand how social media is impacting us (2019, para 14 - 18).

Long-standing debates about the philosophical and ethical problems involved with such interpretive anthropological approaches to „understanding strangers" aside (see Fabian 1983; Rabinow 1986; Hobart 1984), the major problem with these emerging approaches is that – in their quest to use ethnography instrumentally to rescue Big Data from its inability to capture nuanced human experience – these approaches conveniently overlook decades of rich critical anthropological reflection on the problems of using ethnography as a catch-all panacea for representing cultural meanings. These approaches make no reference, for instance, to the *Writing Culture* debates popular in the 1980s, where the authority (and ability) of ethnographic writing was seriously questioned by anthropologists working in the critical philosophical tradition. Contrast, for instance, the idea of Thick Data with Hobart's (1986) description of these critical debates in anthropology:

> The image of the ethnographer as professional scientific theorist became occluded by the appreciation that what passed for ethnographic experience was a complex act of interpretation by which ethnographers textualized the welter of activities going on around them. In place of a scientific object - society - to be described, measured, analyzed and explained, there was culture to be read, appreciated, interpreted and written [Geertz 1973; 1988]. More than is often recognized, the differences between the two objects lay in part the interests of the dominant polities concerned. Europeans needed to imagine others in terms which enabled them to be administered as part of colonial régimes. Social structure was a jural notion appropriate to those whose task it was to map, control and legislate. Americans, by contrast, were concerned with developing others to share in the joys of modernization and modernity, a process which involved a quasi-religious conversion of others from a state of traditional superstition and ritual to reason and enlightenment. This required understanding the cultural values of others: what made them what they were … *Whichever way you imagined the object of study, the difficulty remained though that the accounts were monologic. They privileged the authoritative voice of the ethnographer and silenced the polyvocal reality of social life* (1984: 1; my italics).

Or, similarly, contrast it with Fabian's (1983) description of anthropological scholarship and of ethnography:

> Critical philosophy must inquire into the dialectical constitution of the Otherf. To consider that relation dialectically means to recognize its concrete temporal, historical and political conditions. Existentially and politically, critique of anthropology starts with the scandal of domination and exploitation of one part of mankind by another. Trying to make sense of what happens – in order to overcome a state of affairs we have long recognized as scandalous – we can in the end not be satisfied with explanations which ascribe Western imperialism in abstract terms to the mechanics of power and aggression, or in moral terms to greed and wickedness … That error causes our societies to maintain their anthropological knowledge of other societies in bad faith. We constantly need to cover up this fundamental contradiction (Fabian 1983: x-xi).

While this long-standing debate in anthropology is of course too complex to pay full justice in this working paper, what these approaches risk doing is sidelining decades of reflection on what Deleuze called the „indignity of speaking for other people” (Deleuze and Foucault, 1980). In other words, given the importance of such new data-driven ethnographic methods for understanding digital media today, *how we develop these methods in the future is too important to be left to digital marketing professional alone*.

An alternative approach has to be thus envisioned – an approach that builds more on the critical tradition of anthropology rather than the needs of contemporary platform capitalism (Skirneck 2016). Rather than using digital ethnography merely as an instrumental tool for interpreting cultural meanings or context in the aid of large-scale datasets (e.g. such as researching customers' needs to create a deeper emotional connection with them, that is, to sell them more products), perhaps we need to begin instead by first exploring *how could this more critical tradition of ethnography could work together with computational methods and large-scale datasets – and what are some of the specific opportunities and challenges that arise from this new meta-methodological dialogue?*

2.3 What could an „augmented” data-driven ethnography look like?

What could such a critical data-driven ethnography then look like? Ironically, some of the best attempts to use ethnography (in any of its many contradictory definitions) together with quantitative or computational methods have not come from anthropology but from other fields such as digital sociology, political science or internet studies (see Lupton 2013; Rogers 2013; Snelson 2016; Nelson 2017). These approaches provide a good starting point for us to explore what such a new hybrid method could look like.

Indeed, the closest approximation of the type of data-driven ethnography that I am interested in developing in my research can be found in what Laaksonen et al (2017) call “big-data augmented ethnography.” Their hybrid research approach combines online ethnography and computational methods in an iterative process that encompasses each step of the research. During the data collection stage „online observation is used to ensure that relevant emergent phenomena are considered in the data-collection phase (2017: 14).” During the analysis phase, “field notes are used to guide the computational analysis and computational analysis is used to test hypothesis in line with the ethnographic observations (ibid).” And, during the research validation phase, “the field notes and observations are used to provide human interpretation to computational findings, while computational analysis is used to generalise the findings from ethnography also (ibid).” **Figure 1** shows a schematic overview of this methodology proposed.

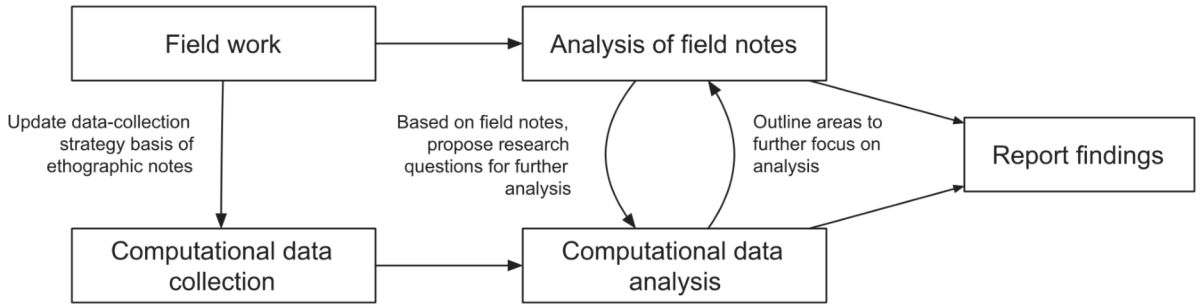

Figure 2: The workflow of data-augmented ethnography proposed by Laaksonen et al (2017: 13).

This type of big-data augmented ethnography can thus provide researchers with three ways to benefit from the merging of ethnography and computational analysis as integral parts of the research process:

1. The first is that „ethnographic observations allow for the contextualisation of the data and help one recognize emergent phenomena from a large data set" not available through computational methods alone (2017: 14-15).

2. The second is that „computational analysis of a large data set can be used for generalising the findings made in field observations (2017: 16)." This allows the ethnographic insights to be potentially generalised to the populations studied in ways that ethnography alone does not allow given its localised and qualitative focus.

3. And the third is that a combination of field observation and computational analysis can potentially allow for the cross-validation of the findings to increase the overall reliability of the study, something which might not be possible using either of the methods alone.

Yet, despite the sophisticated process through which ethnography and computational methods are envisioned together in this approach, its definition of ethnography still remains within the tradition of interpretive anthropology and the associated use of thick description to interpret/describe cultural meanings *alia* Clifford Geerz. Laaksonen et al write „the aim with ethnography is to create a detailed description of the phenomena under study and, further, to create a higher level explanation based on that description" (2017: 5).

A more critical approach to such data-driven ethnography, however, needs to also include a more critical sensibility to the ethnographic research process itself with all its constituent limitations and need for reflexivity . Hobart writes that ethnography

> requires the study of indigenous categories and cultural assumptions, while anthropology itself is part of a changing, and internally diverse, Western academic tradition, This makes the problem of translation in its broadest sense more serious than is often recognized, It is easy to assume that our academic, and cultural categories are self-evident and to overlook how far a „double hermeneutic" is inescapable' *A more critical ethnography would have, as it were, to confront both aspects* (Hobart 1982: 40-41; my italics).

And, while the context of contemporary digital media research might be far removed from the more esoteric problems of negotiating Western theoretical presuppositions with those of indigenous metaphysics, the underlying theoretical problem remains arguably the same. That is to say, *if we are to use digital ethnography as a way to interpret what the „meaning"*

or the „context" of the trends and patterns in such large-scale digital trace data is, how can we assume that these patterns and trends „mean" the same thing to everybody? And if the patterns and trends do not mean the same thing for everybody – as they usually never do – how do we then reconcile between the different frames of reference used to interpret these cultural meanings and their significance?

In other words, how do we negotiate – ethically, theoretically and politically – the sometimes radically different ways researchers and research participants articulate the meaning and significance of their activity? Are we not back here again to the theoretical double-bind of structure/agency or debates on „double hermeneutics," meta-reflexivity or the cultural translation of knowledge across different cultural contexts (see Asad 1986; Giddens 1984; Munk 2017). As a consequence, then, rather than using digital ethnography as a quick fix to try to *solve* this problem of „context" and „meaning" of large-scale digital trace data, or Big Data, we need to perhaps start thinking from altogether a different starting point: that is, how could digital ethnography be instead used in in a way that foregrounds, rather than explains or reduces, the multiplicity of often antagonistic articulations and diversity of experiences that underpin any human collectivity (Laclau 1980; Laclau and Mouffe 1984)?

3 Case study

3.1 Augmented" ethnography in action

A growing body of research has explored the explosion of online hate speech during the so-called 2015/2016 refugee crisis (see Voyonova 2017; Pohjonen 2018, 2019). This refers to a period starting roughly in 2015 when, in response to an escalating civil war and conflict, thousands of refugees started arriving in Europe from Syria, Iraq and Afghanistan. About 30,000 refugees also arrived in Finland. Like elsewhere in Europe, the arrival of a large number of people to a relatively homogeneous country stirred a polarised online debate on how they should be welcomed. Rumors about crimes committed by the new arrivals quickly spread on social media forums and the tone of conversations quickly reached levels of toxicity not seen for a long time in what has been considered one of the most peaceful countries in the world.

In order to understand what kind of social and political dynamics that drove online conversations during the refugee crisis, my research project focused on three online communities in Finland where the debate around refugees was refracted in different ways. The first was the *Rajat Kiinni* Facebook group (Close the Borders), which had emerged as one of the most popular forums for anti-refugee/immigration sentiment online. On the polar opposite of this was the *Rasmus* Facebook Group (Finland's national network and association working against racism and xenophobia, and promoting equity and human rights), which became a forum for anti-racist opinions and in support of refugees. These two groups routinely verbally attacked each other, posted examples of screenshots from other groups, and held offline demonstrations and counter-demonstrations against each other.

Moreover, what was further distinct about the situation in Finland was that members from these two polarised Facebook groups also set up another Facebook page named *Asiallista Keskustelua Maahanmuutosta (a civilised conversation about immigration)* with the explicit aim of trying to foster a „civilised conversation" about immigration in such a toxic and polarised political environment. **Figure 2** shows a macro-level network analysis of these three groups and their relationships to each other on Facebook. This graph that is derived from the network relationship between people who comment and who post on Facebook visually illustrates how polarised the Facebook groups were in Finland at the time of the so-called refugee crisis – with only a few people commenting across and between the anti-

immigration and anti-racist groups. The nodes in the black in the middle, in turn, show the group that was set up as an attempt to foster a discussion between these polarised Facebook groups.

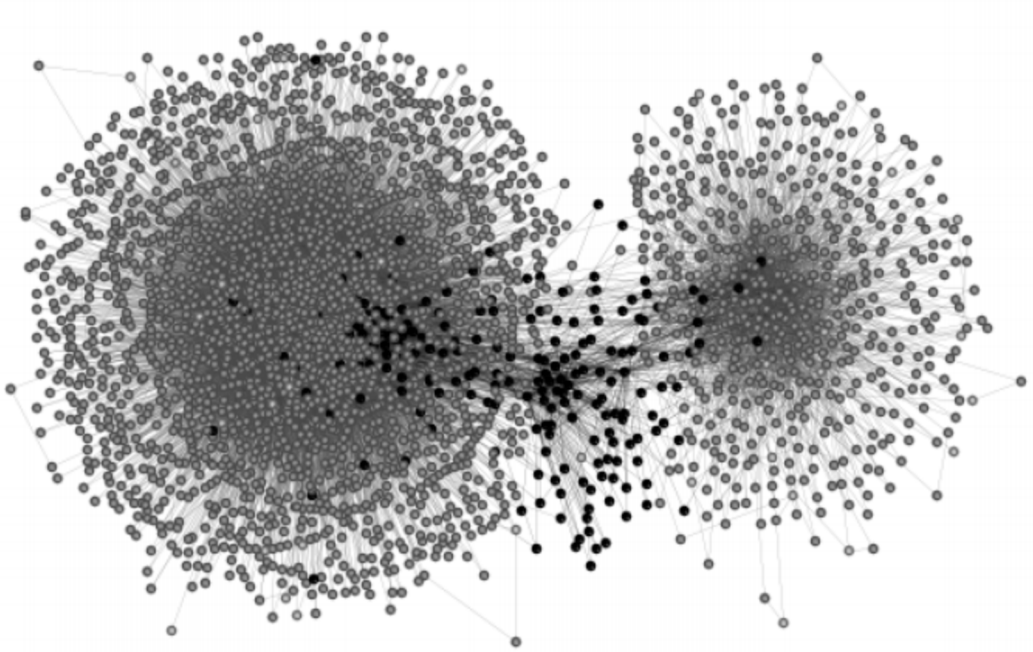

Figure 2: The network relationship between posts and comments in the three groups[2]

These three distinctly different types of popular Facebook groups in Finland – one with a strong anti-refugee slant, one with a distinctly anti-racism agenda and one set up as an effort for counter-speech *(*see Bartlett and Krasodomski-Jones 2015; Ferguson 2016) – thus provided my research with a unique opportunity to explore in detail what types of communicative dynamics and social relationships informed this explosion of online vitriol and attempts to counter it. Moreover, what was crucial about these groups was that the groups were also extremely prolific: in 2016 alone, they produced close to 100,000 posts and 500,000 comments. This allowed my research to experiment with the use of qualitative digital ethnographic approaches together with more computational methods available only for such large-scale datasets (see Pohjonen 2018).

3.2. Research framework developed

The research framework I developed for this research thus combined the use of digital ethnography with experimenting with different computational approaches such as unsupervised and supervised machine learning and dynamic social network analysis. Similar to Laaksonen et al (2017) notion of big data augmented ethnography, my approach also first started with online ethnographic observation of the three groups to identify what the key issues and themes were in these conversations. Once the key issues had been identified through this ethnographic exploration, the research then downloaded all the posts and comments from these groups for more large-scale computational analysis. This was done through the Facebook Graph API (still available for researchers in 2016). The dataset was then enriched to

[2] All of these graphs are taken from Pohjonen 2018.

add gender, the type of news source, the prevalence of such angry, offensive and hateful speech on the posts and comments, and an exploration of the types of topics found in them.

I also deliberately avoided using hate speech in its usual legal-normative definition. This is because it is notoriously difficult to determine what differentiates online hate speech from other types of aggressive, vitriolic, offensive, incivil of hateful content online. Even when working with human annotators, research has demonstrated how difficult it is for coders to agree on what constitutes this kind of speech, especially when dealing with more strict legal definitions of hate speech. Moreover, such difficulties are often expounded when using computational methods. Text mining algorithms, for instance, are notoriously bad in identifying the subtle forms of language that is often characteristic of online hate speech, such as at the use of jokes, innuendo, irony, metaphors, and double meanings (see Kwok and Wang 2013). The computational methods developed in the research thus relied purposefully on a broader category of statements that were more loosely indexical of expressions of aggression or hate fin the Facebook posts and comments analysed. **Figure 3** illustrates the workflow used for data retrieval, preprocessing and exploration/analysis developed for this purpose.

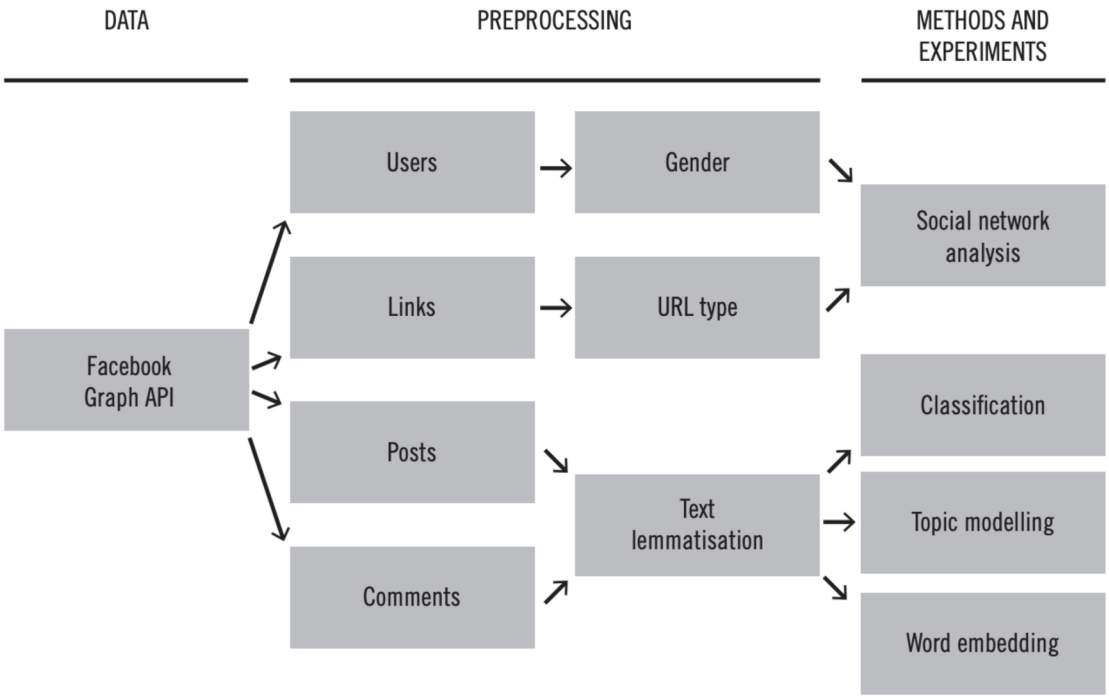

Figure 3: Data collection, preprocessing, and analysis workflow

After downloading the data, the research then explored the use of different types of qualitative and quantitative/computational approaches to infer insights into the trends and patterns found in this enriched dataset. Three levels of analysis were deployed for this purpose in an iterative manner using both qualitative and quantitative methods:

1. *The first level of analysis* consisted of online ethnography to examine what types of situated practices and processes informed the production, debating and sharing this kind of vitriolic content across these three different types of groups. As one of these groups were involved in aggressive and hateful conversations against refugees, this was using what has been called a „lurking” approach to ethnography whereby the

online communities are actively followed *but not participated* in by the researcher because of the difficulty of the research situation (see Bangstad 2017).

2. *The second level of analysis* experimented with computational text mining. Based on a select number of key terms and topics identified through the ethnographic engagement, the research used of different types of methods from Natural Language Processing (NLP) to explore the content found in the posts and comments. This included experimenting with computational techniques such as unsupervised machine learning (e.g. word embeddings to look at the word associations across selected keywords), LDA topic modelling (e.g. to identify and compare key topics discussed in the different groups) and supervised machine learning classification (e.g. to identify content based on whether it contained aggressive or hateful conversation or not). These different techniques were then used iteratively together with the more ethnographic approach, which helped contextualise the large-scale trends and patterns found in the textual data with more granular digital ethnographic observation of these groups.

3. *The third level of analysis*, in turn, drew on approaches from social network analysis to examine the network topologies, key actors and communities involved in these Facebook communities and their relationships. These social network mappings were further enriched by adding labelled textual data and other attributes such as gender to them. The research extended the digital ethnographic exploration of such „topical networks" (Highfield 2012) until I was able to form more empirically-grounded insights into the trends and patterns found in the dataset.

This type of mixed method research approach allowed me to gain both granular insights into the communicative dynamics of the three groups *but also* identify trends and patterns which would have been impossible without the use of computational methods and large-scale datasets. These high-level patterns and trends, in turn, allowed me to fine-tune and re-orient the ethnographic exploration towards new problem areas, which could not have identified without the aid of computational methods

A good example of this type of iterative back-and-forth between patterns and trends and focused qualitative engagement is a time-series analysis I did on what time aggressive or hateful conversation were posted in the anti-refugee discussions. Through focusing on such diurnal rhythms of conversations, the research was able to detect a significant spike in the utterance of aggressive and hateful comments *late Friday evening and early Saturday morning*. **Figure 4** shows some of the time dynamics of hateful comments in these groups:

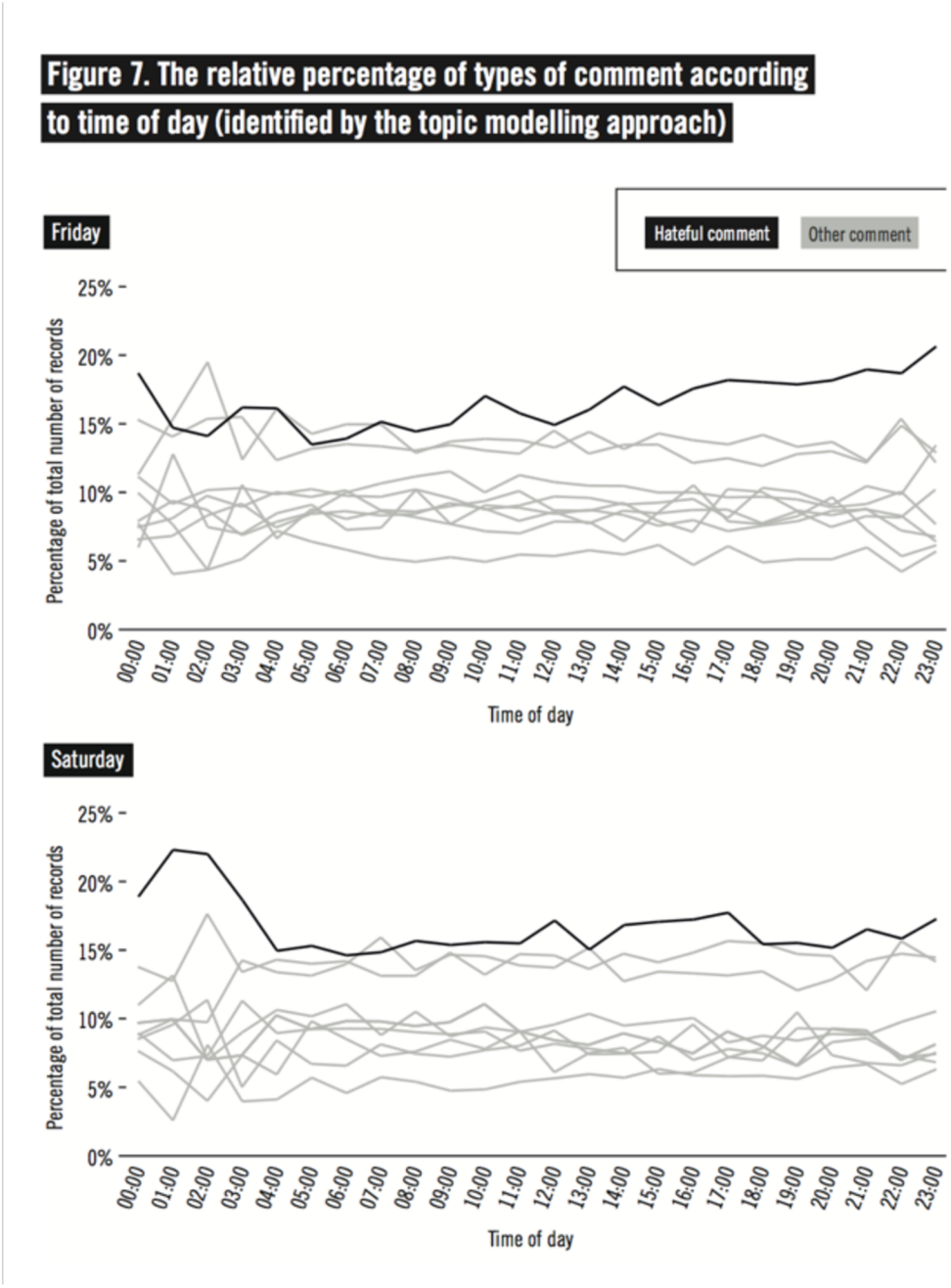

Figure 4: The time of day when hateful comments were published in the Rajat Kiinni group (identified by the Topic Modelling approach)

It is also important to note here that the computational methods were not used to test statistical models or hypotheses as is commonly done in computational analyses. Rather, they were used heuristically to *augment* the digital ethnographic exploration of the research. The use of computational models and large-scale datasets thus served as a kind of an external research prosthesis, a magnifying lens, to help the research identify new problem areas and new questions of interest that qualitative engagement did not allow on its own. Exploring these large-scale patterns and trends allowed me, thus, to revert these trends and patterns back to the digital ethnographic observation of why, for instance, such conversations took place in the early morning hours when a flammable mix of human intoxication and the toxification of debates caused angry, hateful and aggressive conversation to proliferate.

The research results have been already published in detail in Pohjonen (2018) so I will not reiterate its main findings in detail here. These exploratory findings of this research suggested that „perhaps the most dangerous challenge facing Europe is not the explosion of aggressive or hateful content on social media, however offensive and in bad taste much of it is (Pohjonen 2018: 53)" Instead, building on the empirical findings of this research, I argued that the major real challenge facing Europe is perhaps „this shrinking horizon of understanding between opposing members of society, where by even the basic concepts of the debate are not understood in mutually commensurable ways … this political polarization is perhaps a more intractable problem to solve than merely removing aggressive or hateful comments from Facebook (Pohjonen 2018: 53)."

4 Discussion

4.1 Two suggestions for a future critical augmented ethnography

This initial research on online hate speech was highly experimental but it also opened up new areas for theoretical exploration where this approach could be developed further. What I am interested in theorising next is how this critical sensibility of ethnography – skeptical of universal theoretical proclamations, structures, explanatory models, and absolute claims to knowledge – could be even further augmented with this type of meta-methodological cross-fertilisation with computational methods and large-scale datasets. I conclude the working paper with two preliminary suggestions on what I envision to be the future of this kind of research approach.

4.2. Critical augmented ethnography as a way to explore antagonistic cultural meanings and the irreducibility of human experience?

The first suggestion is that this collaboration needs to be done in a way *that foregrounds the irreducibility of human experience and multiplicity of perspectives rather than reduces it to the simplest common statistical denominator*. A good example of what I mean by this is some of the experiments I did with unsupervised deep learning methods called word embedding. Word embeddings are a set of natural language processing (NLP) deep learning algorithms that work by mapping words onto multi-dimensional numerical vectors to create numerical representations of them based on the context of other words in which they appear in the dataset. What is especially interesting about the ongoing research into this type of computational algorithms is that, in addition to mapping semantic relationships between words embedded in the use of language, it has also been used to detect implicit biases in how language is used, such as existing gender biases in large-scale textual datasets (see Foulds 2017 and Bolukbasi et al 2016).

Given this ability to map out semantic associations in large-scale textual datasets, I also wanted to explore in my research how, and if, anti-refugee sentiment similarly manifested in the use of language in these three ideologically-different groups associated with the refugee crisis. The aim of this experiment was to explore whether people in these different groups framed the key issues in the debate in radically different ways or, alternatively, whether some kind of shared epistemological or cultural common ground could be found. The following seed terms were chosen for the analysis:

- islam (islam)
- muslimi (muslim)
- maahanmuuttaja (immigrant)
- matu (a derogatory term for immigrant)
- neekeri (nigger)

- pakolainen (refugee)
- rasisti (racist)
- suvaitsevainen (somebody who is tolerant or liberal)
- suvakki (a derogatory term for somebody who is tolerant or liberal)
- terroristi (terrorist)
- vihapuhe (hate speech)
- mv (reference to the popular far right online news site, mv-lehti)
- yle (reference to the mainstream public news channel, rasmus/reference to the anti-racist group).

This experiment discovered that, indeed, the words were articulated in radically different ways in the antagonistic social media communities. The anti-refugee *Rajat Kiinni (Close the Borders)* group mostly associated terms related to refugees in negative ways (such as „parasite" or „welfare refugee") whereas the anti-racist Rasmus group mostly associated it with more positive terms indicating forced movement or the need to help people. I concluded from this experiment that even the meaning of words

> are understood in radically different ways by the participants involve [and] these definitions need to be incorporated into the research framework to attain a better understanding of the social and political antagonisms that generate such expressions of hate in the first place, and even what the grievances or the jouissance and „fun" driving these conversations are … one must, therefore, remain both critical of what is being expressed in these vitriolic debates and acknowledge that there are often radically different truth-claims by the participants involved; this must always be negotiated while conducting research, even in relatively homogenous societies like in Finland (Pohjonen 2019: 3098)

Such a critical augmented ethnography of the future needs to similarly build on the use of computational methods as a way to better highlight, rather than reduce, the complex and often incommensurable ways people articulate and understand the meanings of their own activities. More broadly, instead of reducing the complexity of human experience to universal explanatory schemas or statistical explanations, augmented ethnography can thus redirect computational methods to also foreground „the essential ambiguity of all culture" (Horst and Miller, 2012) or the „multiplicity of perspectives" (Horst et al 2014) at the heart of critical anthropological sensibility.

4.3. Critical augmented ethnography as the critical exploration of the knowledge-production of the future

The second suggestion I have is that this collaboration needs to be done in a way that *helps foreground the central role of computational methods, large-scale datasets and increasingly artificial intelligence (AI) have as central nodes of knowledge-production of contemporary societies.* An alternative approach to the use of ethnography to interpret cultural meanings is to instead use it to research the *practices and presuppositions* through which knowledge about „society" or „culture" itself in generated through such computational approaches. That is, instead of universalising abstract concepts such as „society" or „culture", a more critical approach to ethnography would focus instead on the situated practices through which knowledge about these concepts themselves are produced and, in turn, how the people involved communicate these „meanings" to other people in complex ways through digital technology.

I have suggested elsewhere that one way to move beyond this double bind of antagonistic interpretations involved in understanding cultural meanings is to adopt a kind of „bi-focal" or „doubly-critical" perspective to research practice itself (Pohjonen 2014). This approach builds on Derrida's argument that critical philosophy has to always be unavoidably situated

both within the historical framework of knowledge that it investigates but also, paradoxically, also outside it. Morley writes that

> when Derrida says that we must recognize that philosophy, as a form of writing, involves figures of rhetoric, to which we must pay attention in ways that philosophers have not always done before, he does not conclude that philosophy is therefore reducible to rhetoric, or that it is only rhetoric. Rather, he argues, we must develop a 'bi-focal' perspective, in which we have to look both at and through the rhetoric of philosophy, in assessing the truth claims that it makes ... to understand *these different registers of truth in their articulation with each other* (2006: 32; my emphasis)

What this means is that a critical ethnographic sensibility needs to be able to simultaneously take into account the worldviews of the participants he/she is researching *but as importantly* the frameworks of knowledge he/she brings into the research situation as a situated researcher. In the context of media studies, Couldry (2010: 39) has described this approach as exploring what „people are doing in relation to media across a whole range of situations and contexts (2010: 39)." Hobart further expands this idea of *media-as-practice* to also include the researcher's practices of theorising and producing knowledge. He writes that „the knower can no longer claim superiority to and separateness from the known but becomes part of the known with all the attendant problems. So a theory or practice which fails to include the researcher and practices of theorising research and writing integral to it reiterates the presuppositions it claims to reject (2010: 57)." Such a more critical account of practice thus gives no *a priori* definition to what such media-related practices are but rather they consist of exploring the „rival ways of understanding complex events and actions (2010: 60)" and a „frame of reference we use to interrogate a complex reality (2010: 62)."

Why might this matter for contemporary digital media research? On a more empirical level, as the case study discussed has suggested, this new type of critical augmented ethnographic approach can be used to potentially produce new empirical insights about digital conversations that are not possible through the use of either qualitative or quantitative/computational methods alone. On a more fundamental level, however, if we are to envision one future task for digital ethnography in the time of deep mediatization, it perhaps to find new ways to understand the growing relevance of computational methods and large-scale digital trace datasets *as central nodes of knowledge-production in contemporary data-driven societies*. Critical augmented ethnography – through embedding itself in the everyday practice of using these new data-driven tools to produce knowledge about the world – can thus potentially help researchers better understand what is theoretically and philosophically at stake as more and more of the future of society is mediated through the use of data, and, increasingly, artificial intelligence (see Couldry and Meijas, 2019a, 2019b).

Somewhat ironically, then, in conclusion, the long lineage of critical anthropological tradition of investigating esoteric categories such as indigenous metaphysics comes back full circle. What are some of the metaphysical presuppositions that are embedded into the increasingly ubiquituos use of computational methods and large-scale datasets across all domains of society? What new epistemologies can we discover from the new developments in AI and other experimental technologies of the future? Indeed, if we are to take the future predictions seriously, there is a lot of serious work that needs to be still done tobetter understand what the emerging indigenous metaphysics of this future will look like (see Bostrom 2014)? Perhaps the digital ethnography of the future – or the type of critical augmented ethnography described in this paper – is uniquely suited to this endeavor.

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