'It ain't a compliment': Feminist data visualisation and digital street harassment advocacy

Abstract

In an era of datafication, data visualisation is playing an increasing role in civic meaning-making processes. However, the conventions of data visualisation have been criticised for their reductiveness and rhetoric of neutrality and there have been recent efforts to develop feminist principles (D'Ignazio & Klein 2020) for designing data visualisations that are compatibile with traditional feminist epistemologies. In this article, we aim to examine how data visualisations are used in feminist activism and by feminist activists. Drawing on the example of digital street harassment activism, we analyse how street harassment is visualised in and through a selection of prominent activist social media accounts. We consider the platform affordances utilised by activists, and how these are harnessed in making street harassment 'felt and known' (Mendes, Keller & Ringrose, 2018). Moreover, we critically interrogate which and whose experiences are 'knowable' via digital techniques, and what remains obscured and silenced. In analysing digital feminist activists' practices, we argue that what constitutes 'data visualisation' itself must be situated within feminist epistemologies and praxis that centres lived experience as the starting point for knowledge production. Such an approach challenges and disrupts normative constructions of what constitutes data visualisation. Our findings demonstrate how feminist activists are adopting 'traditional' practices of speaking out and consciousness-raising to the digital sphere in the creation of a range of visualisations that represent the issue of street harassment. We consider the efficacy of these visualisations for achieving their intended purpose and how they might translate to policy and government responses, if this is indeed their goal. Further, we document a tension between feminist epistemologies and the prevailing logic of datafication or dataism and note how in an attempt to unite the two, some digital feminist activism has contributed to the reproduction of colonial violence, raising concerning implications at the policy level.

Introduction
In an era of datafication, data visualisation is playing an increasing role in civic meaning-making processes. However, the conventions of data visualisation have been criticised for their reductiveness and rhetoric of neutrality and there have been recent efforts to develop feminist principles (D'Ignazio & Klein 2020) for designing data visualisations that are compatible with feminist epistemologies. In this article, we aim to examine how data visualisations are used in feminist activism and by feminist activists. We ask, how might we understand the visualisation of women's experiences of street harassment on digital platforms, such as Instagram, as a form of data visualisation? What are the challenges, limitations and implications of attempting to make 'knowable' women's lived experiences in the form of these data visualisations for advocacy purposes?

In this paper, we adopt Kennedy and Engebretsen's (2020: 22) broad understanding of data visualisation as 'abstractions and reductions of the world, the result of human choices, social conventions, and technological processes and affordances, relating to generating, filtering, analysing, selecting, visualising and presenting data', with visualisation used to facilitate understanding as well as for persuasive purposes. We focus on the visualisation of more qualitative and abstract data and interrogate the creation and use of data visualisation within a feminist activist context and from a feminist perspective. Before examining case studies of feminist data visualisation, we situate our work within the broader context of feminist epistemologies and critiques of data visualisation. As we focus specifically on digital street harassment activism, we consider the unique ontological and epistemological considerations pertaining to this data. Drawing on D'Ignazio and Klein's (2016, 2020) feminist principles, we evaluate the visualisations used in digital street harassment advocacy. We consider how these visualisations can be understood as feminist data visualisation as they work to make 'knowable' women's experiences of harassment. The visualisations explored in this paper are examples of feminist cultural artefacts with distinct semiotic aesthetics and social affordances shaped by the digital platforms on which they are located and influenced by the broader social and political climate they are situated within.

Feminist Epistemologies
In asking how digital street harassment activism constitutes a form of data visualisation, we are fundamentally raising questions of epistemology. What 'counts' as a valid source of knowledge about the world, and, more pointedly, what 'counts' as data visualisation? While some of the data analysed for this project adheres to more traditional understandings of data visualisation (e.g., maps, statistics etc), other aspects are less conventional (e.g., collating stories, artwork etc). As such, it is important to locate this work within broader feminist contestations and disruptions to dominant epistemologies.

While feminism is a broad church, we can nonetheless draw together some central tenets that typify feminist epistemology. Feminist and other critical scholars have roundly critiqued positivist notions of data as neutral and objective, and the supposed 'rationality' of the scientific method (Hill, 2020; Hill et al, 2016). Feminist perspectives instead view knowledge production as always situated, partial and fluid - all knowledge comes from 'somewhere'

(Harding, 2014). Feminist contributions question *how* we come to know about the world, particularly through the use of qualitative methods that privilege and centre the experiences of women (Ackerly & True, 2010; Harding, 2014). In doing so, feminists challenged the epistemic injustice (differentially) encountered by women: the silencing and discrediting of women's voices as a source of knowledge, which is in turn implicated in gendered and other oppression (Dotson, 2015). By using women's voices and lived experiences as the starting point of knowledge production, feminist epistemologies stand in contrast to the positivist approach which values 'a properly executed scientific method, preferably deductive rather than inductive...detatchment and objectivity on the part of the researcher...numbers are sacrosanct' (Hallisey, 2005:355).

Feminist scholars have likewise destabilised and decentralised the masculinist/positivist focus on reason, detachment, and objectivity as fundamental to knowledge production, challenging the binary construction of reason/emotion (Ackerly & True, 2010; D'Ignazio & Bhargava, 2020). D'Ignazio & Bhargava (2020: 209) describe the broader project of feminism as 'seek[ing] to situate knowledge in specific human bodies and to "unmask universalism" (Davis, 2008) - to show how things that appear to be neutral or objective are in fact biased towards the bodies that hold power - typically male, white, abled, heterosexual, and well-educated.' Many of these positivist assumptions continue to underpin work on data visualisation (D'Ignazio & Bhargava, 2020; Hill, 2017; Hill et al, 2016; Kennedy & Hill, 2018; Kennedy et al, 2016), which we examine momentarily.

Epistemologies of street harassment
In understanding how digital street harassment activism functions as a form of data visualisation, we must appreciate the epistemologies of disclosure or 'speaking out' about street harassment (practices which largely constitute the data being visualised in our analysis), as well as the ontological 'blurriness' of street harassment. Both the ontologies and epistemologies of street harassment are contested, fragmented, and imbued with power. Whose and which experiences of street harassment are 'knowable' has direct implications for what is captured through data visualisation - these are far from neutral processes.

We begin with the ontologies of street harassment. What, precisely, does this category include? Across research and activism to date, street harassment most commonly refers to actions such as catcalling, wolf-whistling, following someone, staring/leering, sexual comments, unwanted touching and public masturbation (Logan, 2015). However, some definitions also include sexual assault and rape (Logan, 2015). These actions are typically perpetrated by unknown men in public or semi-public places. Rather than 'harassment', Vera-Gray (2016) argues we should focus on men's intrusions, an approach that expands the scope of what 'counts' to include more subtle experiences, including those that might not be labelled as 'harassment'. What 'counts' as street harassment is also highly subjective and context-dependent, making it difficult to capture experiences through simplistic typologies of behaviour (Author & Colleague, under review; Fairchild, 2010).

While street harassment is often conceptualised as a form of sexual and gender-based violence (Author & Colleague, under review), critical and intersectional contributions highlight how people of colour (Davis, 1994), LGBTQ+ communities (Fogg-Davis, 2006; Stop Street Harassment, 2014), religious minorities (Mason-Bish & Zempi, 2019) and other marginalised groups experience unique forms of harassment based on their socio-structural location. This further unsettles and destabilises the boundaries of what is captured under the banner of 'street harassment'.

These ontological constructions of street harassment influence what is 'knowable' about street harassment, and *how* we come to know. That is, the ontologies and epistemologies of street harassment are deeply intertwined. Dominant constructions of 'what counts' shape which experiences are named as harassment, in turn shaping practices of recognition and disclosure. More generally, street harassment has been routinely trivialised and dismissed as a harmful practice (Gardner, 1995), with victims lacking a language to express their experiences. This is captured in Deidre Davis' (1994) labelling of African American women's experiences of harassment as 'the harm that has no name'.

Digital activism has, to some extent, assisted with making street harassment 'nameable' and visible as a form of harm (Author, 2018, 2020). However, these practices of online disclosure are always already partial and situated (Author, 2016, 2018, 2020). Online disclosure is an epistemological process through which street harassment is made knowable in particular ways that eclipse the complexity of lived experience, while certain forms of harassment are challenging to express via activist platforms (Author, 2018, 2020). Moreover, *who* is able to share experiences and receive recognition online is shaped through relations of power, typically privileging white, cis-gender women's experiences to the exclusion of others (Author, 2018; Fileborn & Loney-Howes, 2020; Wånggren, 2016). As Rosemary Hill (2020: 393) observes, 'in analysing...visualisations, it is necessary to think about who is being counted and who is left out', and online activism is undoubtedly replete with silences.

Feminist Data Visualisation
Data visualisation involves the transposing or transformation of data, through a process of visual encoding, into visual information (Engebretsen and Kennedy 2020). Thus, data visualisation operates as an intermediary between raw data and information. However, what counts as 'data' and what constitutes data visualisation has been a point of contention. An emerging field of literature energised by Catherine D'Ignazio has sought to provide a feminist perspective to the development and use of data visualisation and has brought attention to what constitutes data. D'Ignazio and Klein (2020: 15) make clear that data is greater than numbers and can consist of 'words or stories, colors or sounds, or any type of information that is systematically collected, organised and analysed'.

In their 2020 book, D'Ignazio and Klein update their (2016) six principles for data visualisation into seven core principles for what they call 'data feminism'. These principles are grounded in a long history of feminist intersectional scholarship that 'challenges claims of objectivity, neutrality, and universalism' (D'Ignazio and Bhargava 2020: 218). Drawing on

Donna Haraway's (1988) work theorising how knowledge is always situated and Patricia Hill Collins' (2008, 2009) notion of the 'matrix of domination', D'Ignazio and Klein (2020) demonstrate the importance of recognising a multiplicity of voices and the necessity of cultivating 'racial literacy and gender literacy side-by-side with data literacy' (D'Ignazio and Bhargava 2020: 220).

These principles begin with first *examining power* in an effort to analyse how power operates in the world and second *challenging power* in a way that commits to challenging unequal power structures and works toward justice (D'Ignazio and Klein 2020: 18). The third principle involves elevating *emotion and embodiment* and emphasises the importance of valuing multiple forms of knowledge, ways of knowing, and questioning where knowledge comes from. Principle four asks us to challenge and rethink *binaries and hierarchies,* including the gender binary and other systems of counting and classification while principle five emphasises the need to synthesise multiple perspectives in an effort to *embrace pluralism.* In this fifth principle, D'Ignazio and Klein (2020: 18) encourage the centring and prioritisation of local, indigenous and experiential ways of knowing. The sixth principle draws on the feminist understanding of how knowledge is situated and asks us to *consider contexts* to highlight how data are not objective or neutral but are products of unequal social relations. The final principle is to *make labor visible* in an effort to recognise and value the work involved to achieve equity and equality.

In outlining what makes data-based work feminist, D'Ignazio and Klein (2020: 19) argue a project may be 'feminist in *content*, in that it challenges power by choice of subject matter, in *form*, in that it challenges power by shifting the aesthetic and/or sensory registers of data communication; and/or in *process*, in that it challenges power by building participatory, inclusive processes of knowledge production.' Our analysis explores a range of case studies that demonstrate more traditional data visualisation practices that may in fact not be *feminist* in form, content and process while other cases serve as examples of distinctly feminist practices of data and information visualisation albeit unconventional in form, content and process.

Method
The case studies drawn on in this project were collected as part of a broader project being conducted by the first-named author on victim-centered justice responses to street harassment. The first phase of this project involved mapping policy and activist responses to street harassment across Australia (the study location), the United States and the United Kingdom. The second two locations were selected on the basis that they have been key hubs of activism on street harassment, are English speaking countries, and provide a spread of activist work across three continents that share cultural similarities as well as difference. Data from the Netherlands-based *Dearcatcallers* Instagram account was also collected for a related project undertaken by the author (Author, 2020), and we include this here as it represents a high-profile example of feminist street harassment activism, and a unique means of visualising harassment.

Activist accounts from Australia, the US and UK were identified through targeted searches on Instagram, Facebook, Twitter, and Tumblr using the term 'street harassment'. Searches were conducted in December 2019. Activist accounts were included in the sample if they were located in the aforementioned countries, were centrally focused on street harassment, and were clearly intended as public-facing. Accounts that had not posted any material at the time of the search were excluded. Google searches limited to each of the locations were conducted using the search term 'street harassment', and a snowballing approach was used by identifying other activist groups listed on 'Resources' pages or mentioned in posts. A total of 43 policy and activist responses were identified through this process, with 16 UK-based, 22 US-based, and 5 Australian. In this paper, we focus on a selection of key case studies from this broader sample. For accounts with fewer than 100 posts, screenshots were taken of all posts made to a page. For accounts with greater than 100 posts, every third post was recorded in order to ensure the sample size was manageable. Screenshots were uploaded into an NVivo file.

We employed a qualitative content analysis to examine the examples of data visualisation and other forms of visualisation more broadly that were present on the activist groups analysed. We based our coding and analysis on Schreier's (2012) approach, which involved developing a concept-driven coding frame and then qualitatively coding the dataset. Our concept driven coding system was based on D'Ignazio and Klein's (2016, 2020) aforementioned seven principles of data feminist visualisation and data feminism more broadly. The coding was conducted by two researchers in a multiphase approach that involved several stages of review, which allowed for the researchers to code a sample and cross-check the results for consistency at different points in time.

The datafication and visualisation of street harassment in feminist advocacy
With D'Ignazio and Klein's (2016, 2020) principles in mind, we examined the anti-street harassment advocacy accounts to understand how experiences of street harassment are datafied, collected, curated and visualised on Instagram and stand-alone websites. We consider how platform affordances, recommendation algorithms and metrics contribute to the construction of street harassment visualisations and presentation to an imagined networked public. We found four primary methods of visualising street harassment: data maps, photographs, artwork, and conventional data visualisation. These four types of visualisation are not a comprehensive list of the styles or forms present within our dataset and they did not necessarily occur across *all* of the accounts we examined. They were however located as significant patterns in representing street harassment. The following analysis is structured around these four different types of visualisation, and we explore key examples identified across multiple feminist activist accounts.

Data maps
The first form of data visualisation we consider is data mapping. Mapping was used prominently in two of the activist accounts, Hollaback! and Bristol Street Harassment Project (BSHP). We focus on the BSHP mapping here (see Author, 2020 for a discussion of mapping on Hollaback!). Visitors to the BSHP website are invited to record their experiences of street

harassment on an interactive Mapbox map, either directly on the website or via an app. Users are able to create a data point by dropping a pin on the map at a precise location, and entering a text-based description of what happened. Different levels of visualisation are provided by zooming in and out of the map. A 'zoomed out' view presents a quantification of incidents, with individual incidents across a location collapsed into a single circle with a number indicating the total number of mapped experiences. By zooming in, the viewer receives an increasingly granular visualisation of incidents in localised areas, with numbered circles gradually breaking up into smaller numbered circles, and then individual incident pins (see Figures 1-3). By hovering over dropped pins, viewers are able to read a qualitative account of what happened at each documented location. Thus, the BSHP platform affordances allow for several modes of visualisation, from the more traditional quantification of incidents, through to written accounts of lived experiences.

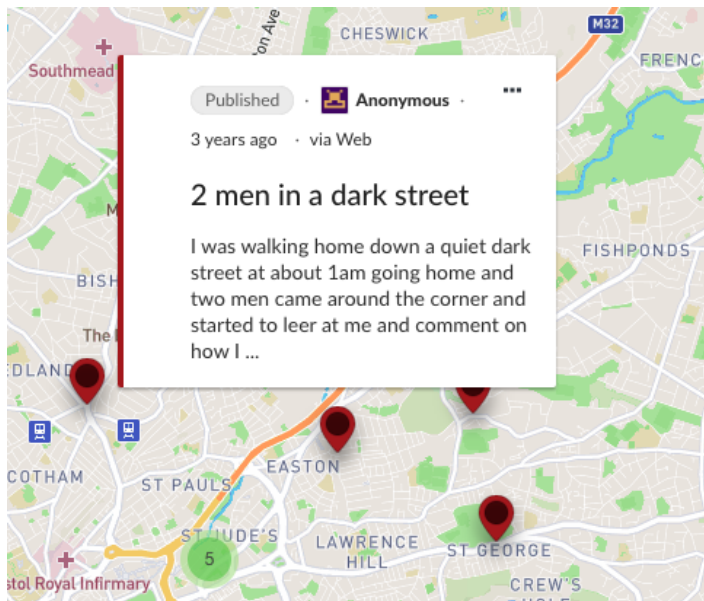Figure 1: BSHP online mapping

Figure 2: BSHP online mapping

Figure 3: BSHP online mapping

The quantitative visualisations represent what could be considered a straightforward, uncontroversial data visualisation. Some more pertinent questions for our analysis are whether this is a form of *feminist* data visualisation, and whether the qualitative components of these maps constitute a form of data visualisation? Whether cartographic visualisation represents a form of feminist visualisation depends on the approach taken. Mapping can be undertaken from a range of ontological and epistemological positions ranging from positivist to more critical stances (Hallisey, 2005). Certainly, cartographic visualisation *can* act as feminist data visualisation, though it may not *always* do so. Arguably, the mapping of street harassment sits uncomfortably across both feminist and positivist approaches to visualisation. As Hallisey suggests (2005:357), feminists can 'harness the power of the visual technologies of GIS to "re-present" the world with the goal of destablizing dominant representations that silence, and are insensitive to, the effects of oppression and violence'. The mapping undertaken by BSHP challenges dominant constructions of space and makes an under-recognised form of violence and its impacts visible (Author, 2020). In this sense, mapping works to examine and challenge power (principle 1 & 2, D'Ignazio & Klein, 2016, 2020).

Yet, the mapping also simultaneously and uncritically reproduces positivist quantification of experience, depending on how the map is engaged with (Author, 2020). For instance, it is quite possible to view the map without reading participants' stories. Further, aspects of contributor's identities - such as gender, race, age and sexuality - are not provided. While this may have been a choice to protect the anonymity of contributors, or simply not provided by users in their submissions, the end result is that pluralism and difference are erased (principle 5). Another limitation of this mode of representation is that, in the case of BSHP, it risks understating the extent of street harassment as a form of everyday violence. As the map 'only' currently displays 25 incidents,[1] from a quantitative perspective it seems

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[1] This is due to BSHP using a free trial of the Ushahidi app, which only displays 25 posts. A total of 83 incidents have been added to the map.

underwhelming. Policy makers may ask what the 'problem' is, with the sparse number of incidents recorded undermining the claim that harassment is a pervasive and routine experience.

We argue that the qualitative aspects of these maps can be considered data from a feminist perspective. In line with feminist epistemologies, written comments can be considered knowledge formation stemming from the voices and lived experiences of (predominantly) cis-women. The inclusion of qualitative commentary ensures that the maps move beyond abstracted, quantified measurement of harassment to begin to capture the nuance, detail, and emotional/affective qualities of women's experiences (principle 3, and principle 6). Gutierrez (2020: 445) observes that 'as rhetorical artefacts serving someone's interests, maps are often fashioned in a way that they can evoke an emotional response and persuade users to believe or do something'. While abstracted quantitative data may assist in 'persuading users' of the extent of street harassment, both the qualitative and quantitative visualisations work to 'evoke an emotional response'. For example, one anonymous poster viscerally describes being followed by four men in the early hours of the morning as "one of the scariest moments in my life, I've been through child sexual abuse [CSA] since I was a child." In referencing her experiences of CSA, this contributor utilises the more commonly accepted seriousness of CSA as a comparative point to establish the full extent of her fear. However, as one of us has argued elsewhere (Author, 2020), the quantitative data may also produce the city as a threatscape for women, eliciting an emotional response of fear that is likely counterproductive to the feminist aims of visualising harassment. Conversely, quantitative visualisation may instil a sense of solidarity with other women, and validation of a viewer's experiences of street harassment. As such, there is complex and contradictory emotional and affective work 'done' through this visualisation. While it is clear that 'data stir up emotions' (Kennedy & Hill, 2018: 831), precisely which emotions are being 'stirred up' through mapping remains an open question (see Author, 2020).

Photographs and selfies

While the data maps explored above are in line with conventional examples of data visualisation and our discussion revolves around whether they constitute a form of *feminist* data visualisation, our discussion here about the use of photos and artwork (explored later) focuses primarily on understanding and recognising them as legitimate forms of data visualisation within their specific contexts. Images and photographs have gained increasing traction as a data source across the social and cultural sciences, particularly in light of the rapid development of visual digital mediums such as Instagram (Tiidenbrg, 2015). Photos can thus be considered a form of data in and of themselves, as well as a means of visualising data. The feminist nature of the photos and artwork explored is more explicit in these examples and we use an understanding of these feminist characteristics to support a conceptualisation of these posts as part of feminist data visualisations.

One account we examined was the 'Dearcatcallers' project, which involved a young woman posting selfies with catcallers she encountered during her everyday life over the course of one month. While not all selfies with catcallers can be considered part of a feminist data

visualisation, we posit that the Dearcatcallers project in its entirety is an example of feminist data visualisation for several reasons. The project's aim was to raise awareness about street harassment and the objectification of women in daily life. The selfies posted were designed with a specific composition that challenged gendered power dynamics and attempted to reverse the power ratio present in the experience of street harassment. The composition of these selfies clearly demarcate the objectifier from the objectified, with the objectified (in this case a young woman) positioned in front of the catcaller (a man) to represent the reversed power ratio achieved in the taking of a photo (see also Author, 2020). In attempting to flip the male gaze and raise awareness about the issue of street harassment, this project demonstrates the first two principles of examining and challenging power that D'Ignazio and Klein foreground as essential to data feminism.
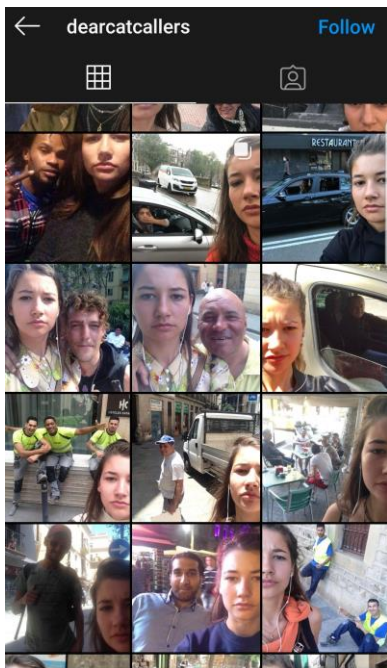

Figure 4: Dearcatcallers Instagram gallery

This particular Instagram account is bookended with the goals and purpose of the account, establishing and defining the boundaries and parameters of the selfies posted. The account was active for a set period of time (one month) and made clear decisions about the types of posts that were to be included, deliberately curating the overview of the posts as seen from the gallery display on Instagram. In this way, the selfies are presented not as isolated posts but as a collective, quantifying the experiences within one month, challenging the notion that experiences of street harassment are isolated incidents, and visualising the cumulative and repetitive nature of street harassment.

The use of selfies to visualise experiences of street harassment also draws attention to the context in which the data was created (principle six) and works to elevate emotion and embodiment (principle three). The photos depict a young woman foregrounded, not smiling, frequently on a footpath and near a road with the catcaller(s) behind her, often smiling and sometimes in a car, in their work uniform, and alone or in a group. The jarring nature of the

young woman not smiling and the catcallers frequently smiling or waving conveys her discomfort and further emphasises the normalisation of street harassment with the catcallers seemingly not realising the problem with their behaviour. Similarly, the context captured within the photos highlights the regularity of the experience occurring on the footpath and, literally, on the 'streets'. The context is further captured in the accompanying caption posted with each photo that reflects on the experience and recounts the story and context specific to each post.

However, when we think about what data is made visible here, and the broader context of the data portrayed, we can see a heightened visibility of race and class. The men most frequently visualised are ethnic labourers and this contrasts with the young woman's whiteness which is foregrounded. This perspective is compounded by the closed nature of the project, which only presents the experiences of street harassment encountered by Noa Jansma (the project creator). In this way, the project is limited in challenging and rethinking binaries and hierarchies (principle four). The project is absent of an intersectional approach that questions and makes visible the complexity of differences and criticises the structural, cultural and social contexts that may contribute to what kind of street harassment is conceptualised, and reifies who is imagined to be the victim and perpetrator.

While the young woman is foregrounded within the images, any reflection on her identity, her social position and her geographical location (Amsterdam) is largely absent from the posts and the account. However, the final posts on the account state that to show that street harassment is a global problem, the account will be passed on to 'girls around the world' in an attempt to embrace pluralism (principle five) and to highlight experiences of street harassment in other parts of the world. These conclusive posts were made in October 2017 and the account remains dormant.

In terms of embracing pluralism, Dearcatcallers also encourages others to participate by either posting their own selfies and stories of street harassment using the hashtag or directly messaging the account, sending their stories privately to be added to the collective experience. The use of hashtags to connect with a wider audience, and the call to action creates the potential for the collection of data beyond the parameters set out by the specific account. However, as the account only posts one woman's experiences of street harassment, it is unclear whether any posts or stories were sent to the account, and if stories were sent, what was done with that data.

The platforms on which street harassment data and experiences are collected, shared and created play an important role in the politics surrounding feminist data practices and feminist advocacy work more broadly. As previous research has demonstrated, platforms attempt to position themselves as politically neutral facilitators or hosts of user-generated content (Gillespie 2018). As Gillepsie (2015: 1) argues,

'It remains tempting to study social dynamics on platforms while ignoring the platforms themselves...But recent work on the social-technical dynamics, context-specific realities, and

political economic dynamics of social media has made clear that platforms, in their technical design, economic imperatives, regulatory frameworks, and public character, have distinct consequences for what users are able to do, and in fact do.'

In the case of Dearcatcallers and several of our other case studies, Instagram played an active role in shaping how feminist activists operate on the platform in terms of the affordances (including the 'favourite' metrics, comments, direct messaging, user description, video/images, hashtags), as well as the searchability, discoverability and visibility of public content and the sorting and curational effects of newsfeed algorithms, and in terms of the platform's community standards and governance mechanisms.

This raises some concerns when considering who has control over the data, who the data may be sold to, and how that data is used by a commercial platform guided by largely corporate interests. Instagram's data policy statements indicate that they collect the 'content, communication and other information' provided by the user including when users 'create or share content, and message or communicate with others'. The policy goes on to clarify that this includes 'information in or about the content' users provide, such as the 'location of a photo or the data a file was created'. This means that content (including location and the device the content is created on) a user might share (such as a self-disclosure) via a direct message to one of the street harassment advocacy accounts is being collected by Instagram.

The data policy further outlines how this content might be used once it is collected by Instagram. These purposes include informing the personalisation of content including ads and other features. In essence, user communication (whether private through direct message, or public posts, as well as users viewing behaviours and patterns) are collected and used to deliver personalised advertising content. In the context of our study, personalised accounts of street harassment are being collected by Instagram and used to inform the types of targeted, otherwise known as 'dark,' ads delivered back to the same and similar users (Author and Colleagues, under review). There is a clear clash here between the principles of data feminism, in which marginalised and impacted communities should be given control of the data about them in the right for self-determination, and the corporate interests by a commercial platform such as Instagram that capitalises on this type of user-generated content for advertising revenue.

This clash is made further explicit in Noa Jansma's experience of hosting Dearcatcallers, in which she encountered a range of anti-feminist and misogynistic comments and interactions with the account; behaviour that has been conceptualised as an extension of street harassment (Vera-Gray 2017). As Vera-Gray (2017: 61) makes apparent in the trolling she has experienced as a response to researching street harassment: anti-feminist online harassment is a continuation of 'men's stranger intrusions in public space'. The large amount of hateful comments that were left on the Dearcatcallers posts prompted Jansma to create a follow-up project in response entitled #DearHaters to better understand the motivation behind the hateful comments.

The comments left on posts become part of the media artefact, contributing to how the visualisation is understood, interpreted, its visibility (through engagement levels), and the potential safety for others to participate and contribute to the conversation. Comments in this way have previously been recognised for their role in the coproduction of a message conveyed by a media text on social media platforms (Nielsen 2014; Author 2020). The development of the @DearHaters project demonstrates a lack of platform governance and moderation by Instagram (and Facebook) in the protection of users who share their stories of male intrusion and street harassment on social media. This recognition of how hate-fueled anti-feminist comments impact and shape feminist data visualisation 're-embodies' the viewer and the audiences in their relationship to the data, a process Hill (2020: 393) argues is crucial for understanding what is at stake in data visualisation.

Artwork
Several accounts created and shared artwork visualising street harassment. Some accounts shared artwork amongst other content while others primarily focused on artwork as a way of representing and curating stories of street harassment. One such account was Cutecatcalls, which posts drawings of people's experiences of street harassment. The artist behind the account is a woman called Zoe Stromberg. Unlike the Dearcatcallers account discussed above, Zoe Stromberg uses her name on the Instagram account and the account description states she is 'drawing your street harassment stories and everything in between' and calls for users to send in their stories. In this way, her drawings are transcoding users' experiences of street harassment into a collection of visualisations.

Stromgberg has co-control of the content as she transcodes the stories into artwork and then shares them with the broader community. This process of transcoding and drawing the stories is influenced by Stromgerg's own experiences, interpretation and understanding of street harassment. As a result, what is represented within the artwork is not the 'raw' story. However, the creation of this artwork (for free) and sharing it on a curated Instagram page works as a way for Stromberg to return the data back to the community to build awareness and a sense of solidarity. This differs from when users choose to participate by posting their experiences or stories using the template Stromberg provides for the 'story' mode on Instagram. When users post their experiences on their own stories, they remain in control of how their experience is presented, although this is shaped by the structure of the template Stromberg has developed, which results in particular aspects of their experience being foregrounded and privileged (e.g. age of encounter and three associated feelings). Self-disclosures of one's experience of street harassment on Instagram incurs personal costs in terms of individual privacy and are vulnerable to advertisers, trolls and other potentially malicious actors. By privately sharing their story with Stromberg, users may maintain a sense of anonymity and privacy and still contribute to this collective imagining of street harassment.

Kennedy et al (2016: 3) argue that information visualisations differ from data visualisations in that they often 'decorate and communicate *a sense of* data rather than precise values'. The posts and artwork presented by the accounts we analysed could be considered information

visualisations in this conventional sense as they are communicating a *sense of* street harassment. However, we argue that these collections on Instagram should be considered data visualisation as collectively they quantify experiences of street harassment while foregrounding the emotion and embodiment of street harassment (principle three). Indeed, as Knight (2020: 7) argues, 'Artistic data visualization in its refusal of understanding, calls into question the very notion of an objective and efficient transmission of information.' This mode of visualisation, according to Knight (2020: 7), works to generate affective or 'emotive responses from the viewer, foregrounding subjectivity', thus aligning with D'Ignazio and Klein's principles. Knight (2020: 16) further advocates the need 'to trouble conventional notions of "data"', something we aim to achieve here in positioning the use of artwork as a form of data visualisation. Understanding artwork as a form of data visualisation asks us to 'rethink binaries and hierarchies' (principle 4) of data/not data, and of what constitutes high quality data.

In making sense of artistic posts as data visualisation, we must understand how these posts work both individually and collectively. Knight (2020) provides a useful comparison in her discussion of the quilting project *The Names Project* (also referred to as the 'AIDs quilt'). As Knight (2020: 17-18) explains, in this quilt 'individual squares may be personally meaningful, but it is in excess, in the joining of massive numbers of squares, that the quilt becomes a material visualisation of the amount of data points in this cultural database'. Although we argue that individual posts of artwork can themselves be considered data visualisation, they can also be viewed collectively - as a series of patchwork 'squares' on a digital quilt - assembling a bricolage of visual data points into a larger whole. It is precisely this disjointed nature, this '*refusal* of efficiency' (Knight, 2020: 18, emphasis added) that renders artwork as *feminist* data visualisation through its disruption of dominant modes of epistemology and representation.

Further, we argue this artwork does not just depict a *sense of* data, but also represents 'precise values' of experiences of street harassment. This requires us to, firstly, question what counts as 'precise values' when it comes to street harassment. The notion of 'precise values' assumes that experiences of street harassment can be readily quantified in a meaningful way. To a certain extent, this is true, as evidenced by posts displaying statistics on the frequency and prevalence of street harassment (which we discuss in the next section). Yet, such 'precise values' underplay the ontological and epistemological slipperiness of street harassment discussed earlier. The contextual and subjective nature of street harassment render the quantified abstraction of experiential data as inherently limited, as it glosses over the contextual specificities of lived experiences (Author & Colleague, under review). In this sense, artwork depicting individual experiences of street harassment may in fact represent street harassment with greater precision than abstracted quantitative data allows. Using D'Ignazio and Klein's terms, 'precise values' in this case requires us to embrace pluralism and context. This was evident in posts illustrating experiences of harassment involving intersectional oppressions. For instance, one drawing illustrated how harassment can be both sexist and racist for women of colour, through an experience shared where a woman was told "you're pretty for a black girl", accompanied by an illustration of a woman with a full Afro,

these words embedded in her hair, as she is turned away in darkness (Figure 4). Her hanging head cast in shadow as a red light shines onto her hair representing the burn of humiliation inflicted by such a male intrusion. The 'precise' value of this experience is unlikely to be captured in simplified statistics representing it as 'verbal harassment', or perhaps 'racist harassment' (missing the ways in which it is simultaneously racist and sexist).

Figure 5: Cutecatcalls

Further, the issue of street harassment is much larger than specific encounters of street harassment. Women's lived experiences are affected and shaped by the anticipation and expectation of street harassment that stems from their lived experience (Vera-Gray, 2018). It is this effect that many of the visualisations attempt to capture and convey and that is challenging to reduce to a quantified number. As such, visualising the effect of living with street harassment (direct or anticipated) is more precisely conveyed through visualisations such as artwork that can capture the emotion and embodiment of street harassment, as opposed to numeric values. Another illustration conveys a sense of how it *feels* to have a strange man impose himself verbally on you, with the seemingly innocuous comment "you friendly?" depicted as literal vomit being ejected from his mouth and onto a woman (Figure 5). The man towers imposingly over her, conveying the power disparity at hand. This visceral representation effectively communicates the lived experience of unwanted verbal comments in a way that would be missed through written description or abstract statistics alone.

Figure 6: Cutecatcalls

Conventional data visualisation

While earlier in this paper we engaged in more definitional questions, interrogating the boundaries of *feminist data* visualisation, we turn here to questions of efficacy and whether visualisation more broadly is a productive and feminist way of making knowable women's experiences of street harassment.

Overall, there were very few conventional data visualisations used in street harassment advocacy. This finding further supports Hill's (2017) analysis into how data visualisations are used to shape women's lives. Hill (2017) found that within the abortion debate, anti-abortion groups were far more likely to use conventional data visualisation than pro-choice. Hill (2017: 1) argues that data visualisation was being used as a 'hindrance to women's access to abortion' and that the 'rhetoric of neutrality' within data visualisation can be harnessed to support work that can be 'very damaging to women's rights'. Pro-choice and feminist groups do not typically employ conventional data visualisation as their choice of communication because of how numeric data is often privileged and how visualisation conventions with their 'clean lines and shapes simplify data' and strip data of their context (Hill 2017: 1, 5).

Within our dataset, there were occasional posts that included statistics about street harassment. For example, several visualisations posted by Cutecatcalls and another account Ourstreetsnow incorporated statistics within the illustrations, such as '65% of women, trans and non-binary have experienced harassment when exercising in public,' '1 in 5 girls have experienced street harassment during lockdown', and 'Women with disabilities are 3 times as likely to be physically abused or assaulted'. When sharing these statistics, the illustrations always include an acknowledgement of the data source, such as from the Human Rights Watch. However, these were some of the only examples of posts that shared detailed experiences of harassment from people with a disability, women of colour, and sexuality and gender-diverse people. Problematically, of the few posts that did include this information most were presented in the form of statistics with short text overlaying a coloured

background, with little contextual information or minimal attempt to embody intersectional experiences. Resultantly, the experiences of marginalised groups were not consistently shared in a way that captured their full complexity. However, the reasons behind this are unclear, and it may be the case that people from these communities are less likely to engage with street harassment activism, or that people sharing their experiences simply do not provide this level of detail in their messages.

In the case of Ourstreetsnow, posts that included statistics were strategically curated within the gallery overview of the Instagram account to sit alongside posts that incorporated quotes, photos, and artwork that articulated and conveyed a plurality of voices and experiences of street harassment. The juxtapositioning of statistics, which are often presented as a percentage or a number alongside text that is pasted over a plain coloured background or at times embedded within an illustration, alongside other artwork, portraits and quotes helps to contextualise the numeric data and reattach it to women's voices and experiences. In this way, the Ourstreetsnow's approach to visualising street harassment blends and splices together a range of visualisation tactics that attempt to reconcile different epistemological stances to appeal to a broader audience.

Figure 7: Ourstreetsnow

Statistical data was drawn on by Ourstreetsnow to create a narrative supporting the criminalisation of street harassment. The sheer scale of harassment faced by women and girls was presented as evidence in and of itself that this diffuse category of behaviour should be criminalised. For instance, one post retorted an argument that legislation would criminalise men for simply looking at a woman in public, stating that: "We're calling for the street

harassment that 90% of British women and girls have faced to be made illegal, like it is in France". Similar statistics were presented in images of protests held in the UK to advocate for criminalisation, posted by both Cutecatcalls and Ourstreetsnow, with these posts also working to make the labour of activism visible (principle 7). Reference was often made to the young age at which many women first experience street harassment, implicitly drawing on narratives of vulnerability and innocence. These statistics were presented in a carefully curated way to tell a particular story about street harassment and how it should be responded to.

However, these visualisations construct an over-simplified (though nonetheless compelling) narrative about street harassment that evades critical reflection and nuance. While street harassment is undoubtedly pervasive and harmful, there is no consideration of whether criminalisation is an effective response. Are there other avenues for prevention and perpetrator accountability that may be beneficial? If criminalisation is introduced, what impacts might this have on marginalised communities, both as victims and perpetrators of harassment? Although these posts clearly challenge gendered power, they provide scant consideration of intersecting relations of power (principle 1 & 2), or the differing justice needs of victims from across diverse communities (principle 5 & 6). In this sense, these forms of visualisation do not fully adhere to feminist principles.

Conclusion

In this article, we set out to examine whether digital street harassment activism can be considered a form of data visualisation and, drawing on the principles developed by D'Ignazio and Klein (2016, 2020), whether these can be viewed as *feminist* data visualisation. Through our analysis, we argued that the work some of these street harassment visualisations do is to curate and datafy ciswomen's experiences of the world, and that their lived experience should be considered a form of qualitative data. We demonstrated how through feminist illustrations and artwork, some of the visualisations persuasively convey data of women's lived experiences to a networked audience by drawing on notions of affect, and how these visualisations work to make knowable the issue of street harassment. Moreover, virtually all of the examples considered here adhered to D'Ignazio and Klein's principle of *participatory* data visualisation, with most activist groups soliciting and datafying experiences submitted by users. However, our analysis also demonstrated how, at times, the visualisations fall into traditional and reductive logics of datafication, often when conveying diverse experiences of street harassment. These findings cause us to question whose experiences are made knowable within street harassment visualisations, what audience these visualisations are designed for, and how feminist advocacy and datafication can perpetuate logics of oppression for people situated at sites of intersectional oppression.

The sheer number of advocacy accounts devoted to shedding light on street harassment and more broadly male intrusion in public spaces (whether digital or offline) reveals the mass data collection being conducted in an attempt to further the cause. In some respects, these efforts are epistemologically paradoxical. On the one hand, the collective story told over many thousands of posts adds weight to the epistemic claims of women and other

marginalised communities (Author's work, 2014, 2017). On the other hand, the *need* for an often-trivialised experience to be 'proven' through mass-disclosure plays into tropes of the unreliability of women's testimony and lived experiences. While these efforts are important in making street harassment 'knowable', their presence on commercial social media platforms raise serious concerns in relation to the use and ownership of this data. We again see a paradox here in that this activism may *give voice* to women's experiences, while simultaneously *losing control* of their data - their lived experiences.

Moving forward, their continues to be epistemological challenges within the policy sphere in which conventional data visualisation is privileged and feminist ways of knowing remain undervalued. An avenue for future research may be to examine the data and visualisation literacy of policymakers to understand how different types of visualisation are understood, processed and privileged at the policy level. Further, seeking out alternative data practices and platforms that are more in line with the principles of data feminism (D'Ignazio and Klein 2020) and/or being more deliberate and strategic in the use of corporate platforms for digital feminist activism may strengthen future approaches to feminist data visualisation, particularly when concerning women's data ownership, safety and right to self-determination.

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