From Data Activism to Activism in a Time of Data-Centrism: Affirming Epistemological Heterogeneity in Social Movements

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In this paper, we seek to understand how grassroots activists, operating within the hegemony of data-centrism, are often disempowered by data even as they appropriate it towards their own ends. We posit that the shift towards data-driven governance and organizing, by elevating a particular epistemology, can pave over other ways of knowing that are central to social movement practices. Building on Muravyov's [102] concept of "epistemological ambiguity," we demonstrate how data-focused activism requires complex navigations between data-based epistemologies and the heterogeneous, experiential, and relational epistemologies that characterize social movements. Through three case studies (two drawn from existing literature and the third being an original analysis), we provide an analytical model of how generative epistemological refusals can support more value-aligned navigations of epistemological ambiguity that resist data-centrism. Finally, we suggest how these findings can inform pedagogy, research, and technology design to support communities navigating datafied political arenas.

CCS Concepts: • **Human-centered computing** → **HCI theory, concepts and models**; *Collaborative and social computing theory, concepts and paradigms*; • **Social and professional topics** → **Computing education**.

Additional Key Words and Phrases: data activism, counter-data, refusal, data epistemologies, data justice, critical data literacy, housing justice, grassroots social movements

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1 Introduction

In Fall 2022, Mayor Bruce Harrell of Seattle tried to pass a city budget that included funds for ShotSpotter [24], an acoustic gunshot recognition and localization technology with a dubious track-record [49, 59]. Seattle Solidarity Budget, a coalition of community groups, hosted a series of panels and meet-ups to educate the community on how the data from this system has been used to justify the hyper-policing of Black neighborhoods in other cities. At a panel that the first author attended, community group leaders discussed a range of research and exposés on how these data-driven systems should not be trusted. However, later, while discussing alternative uses for these funds, one of the panelists argued the city should follow their plan for a community-led effort because it was thoroughly researched, stating, "I have the proof right here, the data doesn't

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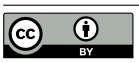

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lie." While the city most likely should be listening to them, it does raise some questions about when speaking truth to power with data, a key language of power, can reinforce the privileged epistemological position of data over other forms of testimony and evidence. Furthermore, it is worth asking whether this focus on data leads activists to strategically lean on data in ways that can edge out the other epistemic practices[1] of social movements.

Within governance and management, policies and practices deemed "data-driven" have become widespread [6, 18, 41], resulting in arenas of political struggle where justification, argumentation, and sensemaking become wrapped in the language of data. This reflects a prioritization of the collection, analysis, and operationalization of data over other knowledge generating and sharing practices [114], an orientation we refer to here as "data-centrism." As this focus on data becomes an increasingly pervasive element of social and political life, many grassroots and activist groups have taken up "data activism," incorporating tactics that lean on data into their struggles for change, much like in the example above. Scholars of data activism point to how activists make use of data quite differently from how more powerful institutions do, leading many to regard it as a reclamation of datafication and an inversion of the power dynamics that generally underlie it [2, 45, 100]. The question that concerns us here, however, is when, and how, data-centrism impacts these types of activism and the futures they work towards.

Social movements, generally speaking, rely on diverse, ad hoc, and relational practices of learning and sharing knowledge about the world, both as it is and as it could be [25, 140]. While these epistemic norms and practices are not necessarily at odds with data activism, they can be paved over or forgotten about when undue objectivity, trustworthiness, and/or impactfulness is attributed to data [28, 33, 79]. We see this as a possible shift in the epistemological heterogeneity of social movements, where heterogeneity in this sense refers to both the diversity of and the relative equal footing between ways of knowing present in a space. As activist Sarah T. Hamid [69] described of a counterdata project with the Carceral Tech Resistance Network, this kind of paving over can happen simply as a result of doing the data work behind data activism: "There were blank cells in the spreadsheet, and we became obsessed with filling them in. And then after a week we were like, 'Why are we doing this? Why are we so obsessed with having a complete spreadsheet?' We started to realize that our way of knowing and our mode of inquiry were being influenced by the nature of the spreadsheet." As Hamid makes clear, activists' epistemic practices are influenced by the tools they use and the trainings they have, but they are also flexible and open to reflection and experimentation. In this work, our aim is to better understand how to sustain such reflection and experimentation while working with data.

Our starting point for exploring this further is the understanding that data activists are often approaching their data work with a sense of what Muravyov [102] calls "epistemological ambiguity." By this, he refers to the combined awareness that data cannot fully capture or represent reality but that it must in some sense be treated as a good enough representation of reality in order to bring about the changes that the data activists are working towards. What prior work has not thoroughly explored, however, is how this epistemological ambiguity around data impacts the other epistemic practices of activists and, in turn, the goals they work towards and the strategies they employ.

Motivated by these considerations around data-centrism and epistemic practices, this paper asks: 1) *When activists turn towards datafication as a tool of organization and agitation, how are other epistemic practices affected?* and 2) *What is needed to maintain epistemological heterogeneity within*

[1] In this paper we employ the concept of "epistemology" as an understanding of what constitutes knowledge, how knowledge gets created or uncovered, and the ways in which knowledge can be mobilized or acted upon. We place our focus here because, as stated by Eyerman and Jamison [57, p.55], "it is precisely in the creation, articulation, formulation of new thoughts and ideas–new knowledge–that a social movement defines itself in society."

datafied political arenas, especially as activists attempt to navigate epistemological ambiguity around data?

To explore these questions, in §4.1 and §4.2 we present two case studies drawn from existing scholarship and first-hand accounts: one regarding community-led audits of public services in Capetown, South Africa, and the other regarding countermaps of evictions and gentrification in the San Francisco Bay Area. Through these case studies, we identify various points at which data activists have the difficult task of resisting the reductionistic, detached views of data-centrism when employing datafied tactics, a type of practice we refer to as "navigating epistemological ambiguity." In §4.3 we present a third, original case study of Seattle-based, non-data-focused activism that actively refuses and seeks to undermine the city's data-centric view of homelessness by disseminating on-the-ground perspectives. Though this kind of activism is not what would traditionally be considered "data activism," these activists respond to datafication by contesting the knowledge frames produced by data-centric epistemologies without leaning on strategies of datafication themselves, an approach we refer to as "generative epistemological refusal." Building off these examples of navigating epistemological ambiguity and generative epistemological refusal, we construct a preliminary model for affirming epistemological heterogeneity in a time of data-centrism.

2 Background & Related Work

2.1 Datafication and the Hegemony of Data-Centric Epistemologies

"Datafication" is a term used to describe the transformation of our everyday world into digital data through abstracting practices of categorization, quantification, and measurement [93, 97]. Regarding governance and public policy, critical data scholars have pointed to how increasing capacities for datafication has helped facilitate the rise of data-driven policy making and administration [41, 83, 120]. Although this state of affairs is not entirely new (enumeration has been a primary means for the state to render aspects of social reality "legible" [125] and to understand "populations" [42, 90] for more than a century), it has been argued that the shift in the scale and pervasiveness of these efforts amounts to a "data revolution" [82]. Recent work has argued that this has enabled a shift in aspects of policymaking, governance, and public administration from the domain of participatory, deliberative politics to the domain of purportedly objective, technocratic expertise [18, 131, 158]. This shift has in many cases changed and/or accentuated the nature of how states seek to govern their constituents, which in turn changes the very possibilities of political participation for the average citizen, activists, and civil society groups [44, 73, 75, 117].

For the purposes of this work, one of the key elements of this shift towards datafication and dataism has been the concomitant elevation of data-centric epistemologies at the expense of other ways of knowing [118]. By providing an "objective" rationalization for excluding individuals from decision-making due to the presumed irrelevance of their contributions, data-centrism can help to concentrate power further in the hands of institutions that can collect and wield data. We build on Ricaurte's [118] phrasing of *data-centric epistemologies*, using *data-centric* as a descriptor of practices and systems that lean on quantification as the preeminent mode of both understanding the world and informing action within it, generally to the point of excluding or suppressing other kinds of epistemological practice.

This being said, it is also important for us to distinguish between data-centrism and the actual practices of collecting and making sense of data. While Critical Data Studies and other fields have identified ways that the practices of quantification can lead to more universalizing, detached views of the world [104], we are not arguing that every attempt at using data towards one's own ends is "data-centric." Instead, we are pulling from this prior work an understanding that there is an

increasingly prevalent epistemic orientation towards data that treats it as "ground truth," or as the most reliable means of understanding the world, and this is what we understand as *data-centrism*. Thus, in this work, we are interested in probing when engagements with data contribute to or concede to the sense that data on its own can serve as the foundation for effective decision-making, as they might then run the risk of contributing to the data-centric arrangements of power described above. In the next section, we will look at some epistemological commitments that underlie this kind of data-centrism, and in later sections, we will build out a more nuanced sense of how these epistemological commitments are taken on or rejected by activists engaging in datafied political arenas.

2.1.1 Characterizing Data-Centric Epistemologies. A likely core of data-centric epistemologies is what Crooks [32] calls "representationalism"—namely the idea that data reliably, accurately, and objectively describes the world. Data-centric epistemologies can also be characterized by their faith in the *sufficiency* of data, that is, what *matters* can always be measured and turned into data [157]. The implication of this belief in practice is that very often, the development and application of a measurement schema is presumed to capture all the necessary context for understanding and acting on the world. Such systems of measurement, however, are always shaped by their developers and the cultures and infrastructures they are situated within [17], and they do not account for the range of localized understandings that are necessary to contextualize the data gathered [87].

Following from the belief in the representativeness and sufficiency of data for understanding the world, data-centric epistemologies are also characterized by their treatment of data as self-evident grounds for acting on the world. "Data-driven" action stemming from data-centric epistemologies can take many forms, but in most cases it relies on doing what the data "says." In the most extreme cases, this can look like building decision-making systems around prediction tools, where prior data is transformed through predictive analytics into a basis for decision-making based on the input of new data about a particular case [10, 75]. A range of less heavy-handed strategies exists as well, where data is ingested through various forms of expert analysis and description, illuminating a path forward *through* the data, in the sense that it is the reality found in the data that is to be acted upon [83, 149, 151].

2.2 Epistemologies of Social Movements

Many social movements exist within ongoing *epistemic violence* [139], where not just their knowledges but the very ways they come to understand the world are diminished or outright suppressed. This has been theorized in terms of *cognitive (in)justice*[159]—an attempt at "equity between different ways of knowing and different kinds of knowledge" [124, p.237]. The people's possibility of understanding and shaping the world in their own ways then, is a critical aspect of challenging systems of domination, making it important to attune to the ways that social movements deviate from or even resist data-centric epistemologies.

A wide body of literature examines the complex and diverse array of knowledge practices of social movements. Social movements are generally composed of a diverse group of actors and organizations that bring together lived experiences and situated knowledges [26, 40] and mobilize them towards collective social action [23] through various means. While some practices are more likely to be recognized by academics as knowledge work, (e.g., research on the workings of power by power mapping [65]), there also exist many relatively less documented movement knowledge practices (e.g., putting on plays [3] and constructing dramatic visual displays [8]). In these ways, social movements both draw from and produce a heterogeneity of established and exploratory epistemological practices and commitments that help to imagine, experience, and push the world otherwise [54]. Contrary to data-driven epistemologies, we see from these prior studies that the

heterogenous epistemologies of social movements tend to be deeply relationally and contextually grounded—trust, direct experience, and storytelling are foundational in building up a shared view of the world [40, 113, 140].

However, this heterogeneity or plurality alone does not make movements immune to broader, oppressive epistemic norms [103]. Leaning on "expert" knowledges (i.e. scientific and legal research, training, and professionalization) can have the effect of conforming movement action to the standards and norms of that expertise [55]. While there are certainly many cases of success from this kind of strategic appropriation of professionalized levers of change, it can also lead to operation within an arguably over-constrained space of knowledge making and mobilization [85]. Within a time and resource limited space, just focusing on building out the case for what is the "truth" as determined by professionalized epistemologies can detract from attending to and building on what is already known by other means [107]. Additionally, it can lead to placing too much faith in knowledge that is unaccountable to the movements themselves and that has flaws that are difficult to unpack without professional training [92]. That being said, movements regularly find ways to make use of these expert knowledges in limited and narrow ways that leave room for them to still put forward strategic and social visions that stem from different epistemological foundations [136]. What must be watched for, then, are the ways that conceptions of "expertise" can reinforce the view that the arena of *politics* is the proper domain of activists and epistemology and knowledge-creation is not [43]. This can be especially difficult to be aware of when it is seemingly just the tools of dominant epistemologies that are brought into social movements, as these tools and people's perceptions and understandings of them can embed notions of the "right" or most "effective" way to organize and mobilize. The second author observed this phenomenon of technologically embedded knowledge hierarchies in their research and activism with the organizing efforts of a Black southern movement in the United States [62, 63]. Her findings reveal tensions within movement organizing that are reflective of similar epistemological tensions to those described in the introduction—whiteness and technological "expertise" paving over relational ways of organizing.

2.3 The Changing Role of Data in Grassroots Organizing

Just as datafication and the growing trust in data have reshaped official practices and forms of governance, so too have they encouraged shifts in how grassroots and non-profit organizations work to create change. CSCW and HCI scholarship on grassroots and non-profit organizations and data includes foundational, descriptive attempts at understanding data work and infrastructures in civically oriented cooperative work and activism [2, 16, 52, 98, 111, 112, 122, 150, 153, 160, 161], educational efforts to simultaneously improve technical skills and to increase critical understandings of data [48, 77, 110, 127], designing tools and methods for making working with and interrogating data more accessible and putting them into practice [34, 115], and otherwise contributing researcher expertise to support bottom-up uses of data as an intermediary [50] or accomplice [154]. In much of this body of work, we see the authors reflectively making sense of what the role of the CSCW/HCI researcher is, or can be, in civic contexts, as they also work to build out a picture of what kinds of inclusive, non-extractivist data cultures are worth striving for. For this paper, we are explicitly interested in how data-focused epistemologies are reconciled or put into conversation with other kinds of knowledge, by both researchers and grassroots organizers. In the sections that follow, we discuss how grassroots and non-profit organizations have made use of data so far and the challenges they face in doing so. Then, we look at how prior research has discussed the clear clashes that can arise between data-centric epistemologies and the kinds of epistemic practices more often found in social movements.

2.3.1 Making Use of Data. Of the ways that the work of social movements has changed in the face of datafication, the clearest ones are to be found in the groups that have made datafication a key focus of their organizing. Beraldo and Milan [14] propose two entangled archetypes of this kind of response: data activism that treats *data-as-stakes*, and data activism that treats *data-as-repertoire*. Data-as-stakes activism makes data and data rights the direct focus of political action, often focusing on protecting privacy and enabling resistance to surveillance by the state or corporate actors. Data-as-repertoire activism, on the other hand, instrumentalizes data and datafication as a political and tactical tool that can be modularly applied towards various ends. As with datafied governance, these forms of activism have long legacies that they build upon. In terms of data-as-stakes activism, subjugated, colonized, and otherwise minoritized peoples have been resisting forms of surveillance and attempting to control what data exists about them for likely as long as the modern state has existed (see e.g., [19, 67, 101]). Similarly, data-as-repertoire activism has its roots in long legacies of minoritized groups bringing evidentiary claims into public fora in order to construct alternative knowledge frames for understanding the nature of the injustices they face (see e.g., [13, 67, 81]. In cases of data-as-repertoire activism, we see how social movements start to enroll practices of data collection, analysis, and visualization in order to "challenge authoritative accounts that are either inadequate, politically vulnerable or misleading" [35, p.973], or, in other words, to advance "alternative knowledge frames" [22] of salient issues. In some cases this involves collating and repurposing state or corporate data, often in the form of "open" data or data from public records requests [95]. Official data sources, however, often do not capture aspects of social reality that are the most important to the kinds of alternative knowledge frames activists are working to construct, and so data-as-repertoire activism tends to involve collecting various forms of "counter-data" [46, 106] such as data about illicit and appropriate land use (one of many types of *counter-mapping* [36, 84]).

Beyond the study of and collaboration with activists that make data a primary target or tactic of their organizing, studies from CSCW and HCI have also identified numerous ways that data and data systems have become an instrumental part of all kinds of mission-driven and grassroots organizing [16, 21, 53, 98, 111, 112, 122, 150, 153, 154]. These studies demonstrate how data is used to understand the populations groups seek to serve or represent; to mobilize resources; to make sense of the institutions and systemic forces they are up against; to prove impact to funders and otherwise make clear the value of their work to the communities they are a part of; and to directly petition action from the government. In the next section, we explore the challenges grassroots and non-profits face under regimes of datafication.

2.3.2 Challenges of Datafication. Though some groups have indeed been able to take advantage of datafication in some of the ways described above, this is rarely the full story of how datafication has changed the work of organizing. Instead, many organizations find themselves facing new sets of challenges around data. Most obviously, this can be because grassroots groups and non-profits simply do not have the required capacities for taking on data activism or data-mediated organizing, whether it be the time, expertise, resources, or infrastructure [2, 16, 153, 160].

Beyond capacity restrictions, a significant challenge grassroots and non-profit groups face is actually making data practices helpful to the work they are trying to do. Non-profits and grassroots groups often collect data in order to render their "impacts" legible to the public and possible donors, but such data is often otherwise unhelpful [16, 111]. Bopp et al. [16] argue this can even result in a kind of "data-drift," where the organizations' goals and strategies become more focused on what is measurable than on members' own understandings of what is effective or mission-aligned. Similarly, Crooks and Currie [33] and Pierre et al. [112] strongly critique how growing requirements on grassroots activists to produce data as evidence of injustice are themselves a form of injustice,

as the people who are affected by the unjust systems being fought against are already well aware of its impacts. As such, the knowledge creation process of data collection and analysis is often redundant, and yet groups feels they must do it anyway—a situation Crooks and Currie [33] and Pei et al. [111] call a "data double bind."

In the related domain of citizen/community science, a number of studies have also looked into the pitfalls of focusing on data collection too strongly in response to the data-centrism of environmental governance [20, 72, 86, 129]. In their studies around toxicity monitoring, Shapiro et al. [129] describe the "data treadmill" as a common trap where enumerative projects become enmeshed in "intensive data production in a preset direction and an intrinsically unreachable destination." (p. 308) This focus on scientific data, they say, 'has the potential to foreclose imaginative horizons of "how" and "why" in favor of "how much"' [129, p. 305], speaking to a particularly pernicious form of data drift. In light of such potential challenges, especially around the ways that groups *know* and act on knowledge, we turn now to how the literature on data practices in activism has previously conceptualized these kinds of epistemological tension.

2.3.3 Between Epistemologies. In foundational scholarship on data activism, we see a hopefulness that the epistemologies of data activism are something distinct from hegemonic, data-driven ways of knowing and, as such, are actually a form of resistance to dataism. As argued by Milan and van der Velden [100, p. 4], "If data is not a given nor is it ever raw (Gitelman, cited in Milan, 2013), data activism can be seen as an exercise in creating alternative ways of seeing the world, while opening up questions about the positivism ethos of the so-called 'data revolution.' " That being said, much of this scholarship takes data-centrism seemingly as a given, if not philosophically, then practically—in which case the best thing activists can do to reclaim their power is to strive for a "datafication from below," either by appropriating data and its associated credibility or by trying to prevent the data from existing [137].

Subsequent studies, however, have pointed to various epistemological tensions that crop up in data activism. In an interview study with data activists, many of whom were seemingly coming more from non-profit and NGO organizations than grassroots social movements, Gutiérrez and Milan [66] discuss how:

> 'Only a minority of our interviewees appears to challenge the positivist ethos of big data openly; most make it their own, however giving it a social change twist. This seems to be the "original sin" of proactive data activism, which explicitly emphasizes the possibilities for social change offered by big data and seeks collaboration and results as opposed to resistance and critique.' (p.10)

This finding is especially significant, as Gutierrez and Milan also explain how the data activists they interviewed saw themselves as a distinct type of activist whose role is the mobilization of data for everyone else in the movement and to make sure others see the value in this kind of work. Clearly, then, this type of data activism can run the risk of reinforcing epistemic hierarchies, as Cinnamon [28] found in his study of data activists conducting social audits (discussed more in §4.1).

In a study on infrastructure data activists in Russia, Muravyov [102] speaks to how organizers use a mapping tool to catalog infrastructure problems in order to use data as a means to contest and remake the world, but in this process they also are unable to take data for granted as much of it comes from unreliable institutions in local governments. Muravyov describes how these data activists maintain an "epistemological ambiguity" of data as they exist in a constant, inherent tension, where the contestability of data collected for the mapping project at hand is not something that can be moved past by collecting more or better data. Instead, they acknowledge the fragility of data while also being committed to its ability to reshape the world and our understanding of it. D'Ignazio [45] describes the relationship of activists to datafied strategies as one of "an opportunistic

political alliance," where they see the ways that reducing people and complex social situations to data is necessarily reductive and not to be trusted in many senses, but that it is also a reduction that can end up being made politically empowering for those represented in the data—a situation that resonates with other studies of data activism [150]. While it is clear from these and similar studies that most activists working with data are not treating it as a fully representative, sufficient view of reality, it is less clear how this ambiguous view of data affects other kinds of epistemic practice in ways that could shift organizations' strategies or even their theory of change.

3 Methods

In this paper, our objective is to draw insights from the varied ways in which activists navigate epistemological ambiguity. We approached our analysis with the hypothesis: activist groups show varied levels of *data-centrism* in their (collective) actions. To further develop our arguments, we take a case study approach in this paper as our primary method. In Table 1, we provide a catalog of our case studies, a purposive sampling of three activist campaigns of varying time and scale. A primary advantage of this approach is that we are able to analyze not only the epistemological navigation between collective actions organized by three different activist groups, but also in case studies §4.2 and §4.3, we are able to analyze multiple actions within the same activist group. By reviewing academic and activist sources, we can attend to specific moments of decision making described in a single publication as well as the broader scale shifts in strategy over the course of multiple projects that might only be seen by piecing these sources together. In what follows, we discuss our case study selection process in detail.

3.1 Case study selection

In choosing case studies, we follow Seawright and Gerring's recommendation and include "useful variation [in our selection of cases] on the dimensions of theoretical interest" [126]. For this, we turned to a range of sources: 1) peer-reviewed publications, 2) public documentation and scholarship produced by the activist organizations that led the campaigns we study, 3) social media posts and other artifacts of significance produced by the same activist groups, and 4) our personal engagement and field notes. In Table 1 we map our case studies according to their type, variation, and sources used to construct the corresponding case study sections in this paper.

To determine our inclusion/exclusion criterion, we followed our theoretical objective of understanding a varied degree of reliance to data in the stated (according to sources such as movement or campaign websites, academic or journalistic reporting of the movement, etc.) organizing goals, techniques, etc. In selecting case studies that stated heavy (§4.1) to moderate (§4.2) reliance on quantitative measurements, we included cases where data activists were clearly attempting to incorporate or build off of other ways of knowing through their data work, and for this, we narrowed our focus to cases where the activists had an explicitly stated goal of amplifying or sharing the perspectives of the communities they were a part of and/or supporting. Our final criterion was driven by the constraint of how many sources of primary and secondary documentation available were available publicly for a particular case. After looking more in depth into six potential options, we settled on the two cases discussed in the next section.[2]

In selecting a case study that stated a low reliance on data-centrism (§4.3), we purposely chose a case that currently falls outside the limits of what the academic literature and social movements considered "data activism." We turned to an example that we were made aware of through community

[2]The other cases we looked into were informed by the work of Matthews [92] on the Extinction Rebellion's use of the "3.5% rule," D'Ignazio [45] on Feminicide Data Activist in Central and South America, Tran et al. [153] on the Housing Justice League's data practices in Atlanta, and Carrera et al. [22] on community water and pipe testing and mobilization in Flint, Michigan.

Case	Type	Variation w.r.t. hypothesis	Sources
South African Social Audit Movement (§4.1)	A series of short-lived campaigns with similar objectives.	Centering data in activist actions.	peer-reviewed publications in the fields of Geography, Development Studies, Political Science, big data studies; activist materials such as reports, websites, etc.
Anti-Eviction Mapping Project (§4.2)	A long-running campaign with multiple methods and objectives.	Using data in activism but explicitly noting the costs of relying on data alone.	peer-reviewed publications in the fields of Geography, HCI, big data studies; activist materials such as reports, websites, etc.
Stop the Sweeps (§4.3)	A long-running campaign supporting with a specific objective.	Purposefully staying away from data-reliant advocacy and choosing relational methods instead.	field notes; activist materials such as reports, websites, social media posts, journalistic accounts etc.

Table 1. Our three case studies according to the type of campaign, alignment with our initial hypothesis, and sources used to design the corresponding case study sections.

engagements in the Seattle area. Although none of the authors are part of the organization in the third case study, Stop the Sweeps, the first author has attended multiple rallies and other community events that this organization has (co-)organized, and they have been following the collective's efforts through social media and local media sources for multiple years. We also reviewed this organization's social media posts (Instagram, Facebook, and Twitter) from August 2023 to February 2024, and categorized them based on the topics they addressed. We then conducted a local media search to see how Stop the Sweeps have been publicly discussed and, in turn, how they have been involved in this broader dialogue.

4 Case Studies

4.1 South African Social Audits: On the Possible Costs of Leaning Into Data-Centrism

The Social Audit movement in South Africa that reached its peak between 2014 and 2019 illustrates some of the ways that epistemological ambiguity is navigated by grassroots social movement groups taking up data activist tactics. Social auditing arose as a strategy of holding the post-Apartheid government to account on equitably appropriating resources for service delivery. The first step of a Social Audit is to reconstruct the state's view of how services like schools and waste management systems are operating through access-to-information requests, and, in so doing, raise awareness within the community about what services are supposed to look like [135]. Then, by mobilizing communities to collect their own counterdata on service delivery in practice, activists were able to produce a more formal view of these systems that better aligned with the community's experiences of being failed by service provision. These bodies of evidence and reports built off of them were then used to rally the community and try to force local governments' hand in actually providing services up to the standard that they claimed.

For this case study, we draw from an assortment of academic [15, 28, 96, 119, 121, 148] and activist [132–135] sources describing both the on-the-ground practices behind social audits as well as the successes and challenges in the eyes of activists and outsiders. Prior scholarship in this space

ranges from approving and optimistic [148] to more hesitant and critical [28] about the potentials of success and values alignment with this type of data activism.

The first South African Social Audit was led by the Social Justice Coalition (SJC), an activist organization that has a history of using a diversity of tactics to exert pressure on the state. The social audit, in itself a part of larger process, focused on the provision of sanitation services in Kayelitsha, a township near Cape Town that at the time of the audit was made up of majority informal housing [121, 148]. Storey [148, p. 405] describes how, "groups [like SJC] often have complex relationships with the state and local governments, incorporating into their demands both rights-based, liberal solutions that work alongside government actors and counter-hegemonic, anti-neoliberal resistance." In this way, the SJC combines elements of a grassroots social movement and a more established non-profit, which helps explain how the social audit took shape as a strategy. SJC's approach tried to blend "personal stories with statistical data culled from community members' own field research," [148, p. 409] producing "forms of knowledge legible to city monitoring and evaluation processes (statistical and objective) but imbued with personal narrative (experiential and subjective)" [148, p. 409]. In this way, SJC sought to position their community members as both the most important and the most credible voices on the matter of service delivery, attempting to synthesize and translate their existing knowledge into a form more likely to carry weight with officials. Here then, we see the first attempt at reconciling the epistemological ambiguity inherent to using data-as-repertoire in a grassroots context—there is a desire to elevate other ways of knowing up to the level of credibility of data-drivenness, but doing so seems to require some amount of contorting of local knowledge into something more quantitative and placing that knowledge elsewhere, outside of the community members themselves.

That being said, the results of the audit went beyond just the data-driven goal of producing a report that could be used as evidence in the eyes of the state. The community members that participated in data collection produced knowledge and understanding that extended much beyond the charts and graphs in the final report as many of the surveyors themselves were from those or similar areas, and discussions of shared circumstances "produced a systemic understanding of this service as it is experienced across communities." [148, p.413] This shared knowledge created by discussing with one's neighbors issues of shared concern is emblematic of the more horizontal, relational epistemologies of grassroots social movement spaces more broadly. Thus, even a very data-focused strategy conducted by a grassroots group shows potential for generating other forms of knowledge. The question then becomes, however, how are these different forms of knowledge mediated between, and how are they disparately leaned on when working towards an alternate future? Later social audits proved to raise trouble around this question.

The positive elements of the first South African social audit notwithstanding, the city did not respond to it by addressing the shortcomings of service provision for Kayelitsha. Rather, city officials considered the final report an attack on their legitimacy, responding defensively and denying the validity of the SJC's findings [121]. After a second attempt led to similar results, SJC organizers decided to try a third audit that would leave no room for attack on the grounds of its rigor. This approach encountered many trade-offs with the other ways of knowing present in grassroots spaces, many of which Rossouw [121], one of the organizers, thoughtfully addresses. In his own words: "Whereas as Storey (2014) had emphasised how the [first SJC] social audit had legitimised and valorised the experiences of residents, perhaps, we had mistakenly placed too much emphasis on valorising the data. Perhaps we needed to focus on legitimising experience and the voice of residents as true, reliable and valid data in and of itself" [121, p. 80].

For the purposes of this case study, we want to highlight a few specific details that Rossouw shares from this more data-driven audit that are likely to transfer to other navigations of epistemological ambiguity. This audit was quite rushed, resonating with prior discussions on the constraints of

doing data work in organizing contexts [2, 53, 153], as it entailed just three days of actual data collection and analysis and concluded with a high-stakes town hall with Cape Town elected officials. Throughout these three days, Rossouw describes having to make many compromises on the role of non-quantitative forms of knowledge in order to execute on the planned data analysis. In multiple instances, Rossouw tells of how participants in the audit brought insights and analyses into the political and structural factors that likely contribute to service provision failures, but they could not be easily supported with available data so they were largely forgotten until after the more formal analysis concluded [121]. This speaks to how, very practically speaking, once data has been produced, it becomes very easy to let the data guide strategy, unconsciously paving over aspects of social movement epistemologies. Furthermore, the data from the social audit became the primary rhetorical tool that organizers sought to employ, at the expense of rhetorical strategies that centered the capabilities of all involved to speak their own truth and that would bring others into the struggle [121].

One final point to be made about this case is that in the instances where people did see their stories reflected in the data, there was a deep confidence that came from having data on their side. One of Cinnamon's interviewees expressed how "It is not just the people power activism, it's backed up by us knowing what we are talking about ... because then when the arguments come out against what we are saying, we can say well you're actually wrong, there is scientific evidence here" [28, p.629]. It cannot be ignored that the broader society's sense of the objectivity of data is going to hold sway over activists working with data—the general credibility usually given to data being directed towards validating one's own experience or cause is understandably meaningful and emboldening. As Cinnamon [28] argues, however, this boldness can lead to strategizing around data as a tool that forces powerful institutions to listen, even when it fails to do this in practice.

That being said, as these community groups encountered repeated pushback from official sources on the objectivity of their data, the organizers most involved in Social Audits learned from these experiences and tried to push for a less strictly data-driven approach to social audits. In a guide on social audits created by the Social Audit Network, a partnership between 9 non-profits, they warn about the "Data Trap," saying

> [R]eadily accessible evidence does not immediately translate into accountability. [...] In the end, no amount of data is sufficient to appease government officials who are determined to undermine the findings. Further movement in this direction would be a trap. [135, p.110]

This warning resonates with previous discussions about the "data treadmill" [129], suggesting that a critical awareness of the *treadmill* is likely to arise organically once an activist group finds itself stuck on it.

4.2 The Anti-Eviction Mapping Project: Being Explicit About Epistemological Priorities

The social audits led by South African community organizers are one kind of example of the many ways that data activists attempt to collect, synthesize, and mobilize data and the knowledge it informs. The Anti-Eviction Mapping Project (AEMP) serves as an example of another way that data can factor into struggles for social and political change. Founded in the San Francisco Bay Area in 2013, "the AEMP was formed as a data visualization, data analysis, and digital storytelling collective with the aim of documenting dispossession to make visible and actionable the terrain of gentrification and resistance in the city" [91, p. 380]. A central goal of the project "is to provide tenants and housing organizers with useful data for organizing" [95, p.55]. For the purposes of our case study, we will review just a few of AEMP's many projects.

The AEMP's first mapping project was a joint effort with Tenants Together to show how many of the evictions in San Francisco between 1997 and 2013 were the result of real estate speculators abusing a loophole in California's Ellis Act. The Ellis Act was originally meant to give longtime landlords the option to leave the rental market and evict their tenants. By combining data from a number of sources, AEMP was able to show that this law was primarily being used by speculators who were buying old buildings only to "leave the rental market" within a few years and evict residents to sell their units as condos [94], often repeating this multiple times [152]. Building on this data, the AEMP put together an interactive map that demonstrated the accumulation of these evictions over time [4]. Tenants Together also put together a more formal report detailing these findings targeted towards the City. In much the same way as the social audits in the prior case study, these efforts sought to collect and combine data in ways that would at once be understood by government, but also draw attention to the ways that the government is failing to protect its people. In ways similar to the social auditors as well, the AEMP found over time how these countermaps they had produced leaned too strongly on the data and missed "the experiences and stories of eviction, loss, and refusal" [94, p. 383].

To address this gap, members of the AEMP started a new project, called the Narratives of Displacement and Resistance (NDR), focused on building out a set of oral histories, ultimately visualized on a map, from Bay Area residents that have faced and/or fought against eviction and other forms of coerced displacement. With long form interviews, this project augmented a more traditional data activist strategy of demonstrating the scale of a problem with data by clearly showing how each of these datapoints is a person or household with their own messy, political understanding of the problem. In this way, AEMP's approach to this project shows a clear commitment to relational knowledge practices, putting knowledge embedded within personal narratives on equal footing with what can be communicated with quantitative data. Furthermore, AEMP sought to mobilize these stories using a diversity of tactics, most of which were aimed at raising community consciousness (e.g., through public art installations [5]).

Another of the longest running projects of the AEMP is a series of attempts at the very difficult work of tying eviction records to landlords, which are often obfucscated through mechanisms that effectively conceal ownership and management, in order to support tenant organizing and eviction defense. This has resulted in a tool called *EvictorBook*, which allows users to enter their building information and see the history of evictions related to their landlord as well as the property ownership network that their landlord is situated within, "turn[ing] the surveilling gaze back on landlords" [95, p. 58].

While clearly enabled by the sourcing and processing of multiple streams of data, this project still in many ways reveals a commitment towards aspects of social movement epistemologies. Perhaps most notably, as with the NDR, the data is processed and prepared for use in a way that is deeply contextual and that retains the "necessary aboutness" of place [40]. Unlike larger scale, US-wide efforts to understand eviction (see, e.g., the Eviction Lab [56]), the AEMP has confined their efforts to where they can provide tailored, actionable data. Given the deeply local context of this data, it is unlikely that it could be wrangled and compiled at a larger scale. This resonates with the calls of D'Ignazio and Klein [47] and Loukissas [87] to maintain a focus on the locality of data in order to not deviate into the land of data-drivenness.

Most recently, AEMP announced a collaboration with Centro Legal de la Raza and the Bay Area Housing Finance Authority (BAHFA), a regional housing authority with the stated aim of making housing more stable and accessible [99]. The project, titled the "Bay Area Eviction and Legal Services Study," will attempt to collect both quantitative and qualitative data about evictions and other more informal, forced displacements, sourcing data from City and County courts and agencies as well as tenant legal support groups and tenant unions. By focusing data collection

efforts beyond "official sources," this project is starting off with an intervention on what data counts as *valid*. In addition to collecting quantitative data from these sources, the project will also involve surveys and interviews with the tenant support groups in order to better understand the relevant local factors and strategies of eviction and displacement. Here then, we do see a meaningful attempt at democratizing data-driven policy-making, as the very constructs that are being operationalized in the measurement process, such as what *eviction* even refers to, are open to various forms of feedback and modification processes. Such efforts to raise the epistemic value of qualitative data to be more comparable to quantitative data are significant, even if we are yet to see how the process plays out. All of this being said, in a recent public meeting announcing the project, the BAHFA representative made clear that they (and their community correspondents) are starting from the position of "We know these are the problems, but we need data to back it up" [58]. This does raise concerns around how this project could have the effect of raising the epistemic burden for tenant advocates without offering a clear pathway towards building consensus about what to do about these issues that everyone involved already knows are issues. We cannot say just yet, however, how the members of AEMP plan on navigating such tensions.

Considering all of these projects together, it's important to note how critical understandings of data clearly do not lead to hard and fast rules such as "there's no use in using data activism in concert with government." Rather, it is possible for agitation to open spaces of collaboration with governing institutions, and potentially push policy-making and governance more into alignment with a critical view of/with data, and these likely require balancing a very different set of epistemological ambiguities than when acting as an independent group of activists.

4.3 Contesting Seattle's Data-Driven Homelessness Plans

The City of Seattle has a long and storied legacy of attempting to address homelessness within its boundaries. For the last 30 years, every elected mayor has released a plan for how to solve homelessness, or at least some specific version of it [30]. Since 2016 at least, these plans have been labeled by their creators' as "data-driven," suggesting a level of evidence-based, systematic direction of resources to address the problem that has not really born out in practice. The latest version of this is represented mostly by the "One Seattle Homelessness Action Plan" (OSHAP) and data dashboard that was announced by Mayor Bruce Harrell in 2022. While OSHAP statedly revolves around opening up shelter and permanent beds for the unhoused, journalists have shown that most of the new beds attributed to the plan were already under construction by the time the plan was rolled out [12]. Instead, many critics and housing justice advocates argue that the most visible use of funds has been on sweeps—violent, forced relocation of tent and RV communities [11, 38, 142]. This extends a long legacy of Seattle homelessness policy having two distinct faces, one where various punitive strategies are used to remove unsheltered people from view, and another where innovative housing and support programs pushed for by poverty activists are experimented with [51]. Just looking at the city's OSHAP data dashboard, part of which is pictured in Fig 1, one could be forgiven for thinking it was in line with the second of these faces for how much it discusses leading with compassion and appropriating resources towards new permanent housing solutions [105]. The data around "pounds of debris removed" and "shelter offers made" during care team "visits" and "camp closures," however, conceals a much darker story, one that is much more honestly and openly told by those targeted by this plan and their allies supporting them in the fight against it.

As others have already discussed in the academic literature, Seattle has a vibrant and prolific poverty activist community, and much of the organizing work is done by those who are unhoused or who have previously been unhoused [51, 71, 138]. In direct response to the city's penchant for sweeps, an assortment of groups, collectives, and coalitions have formed within this broader

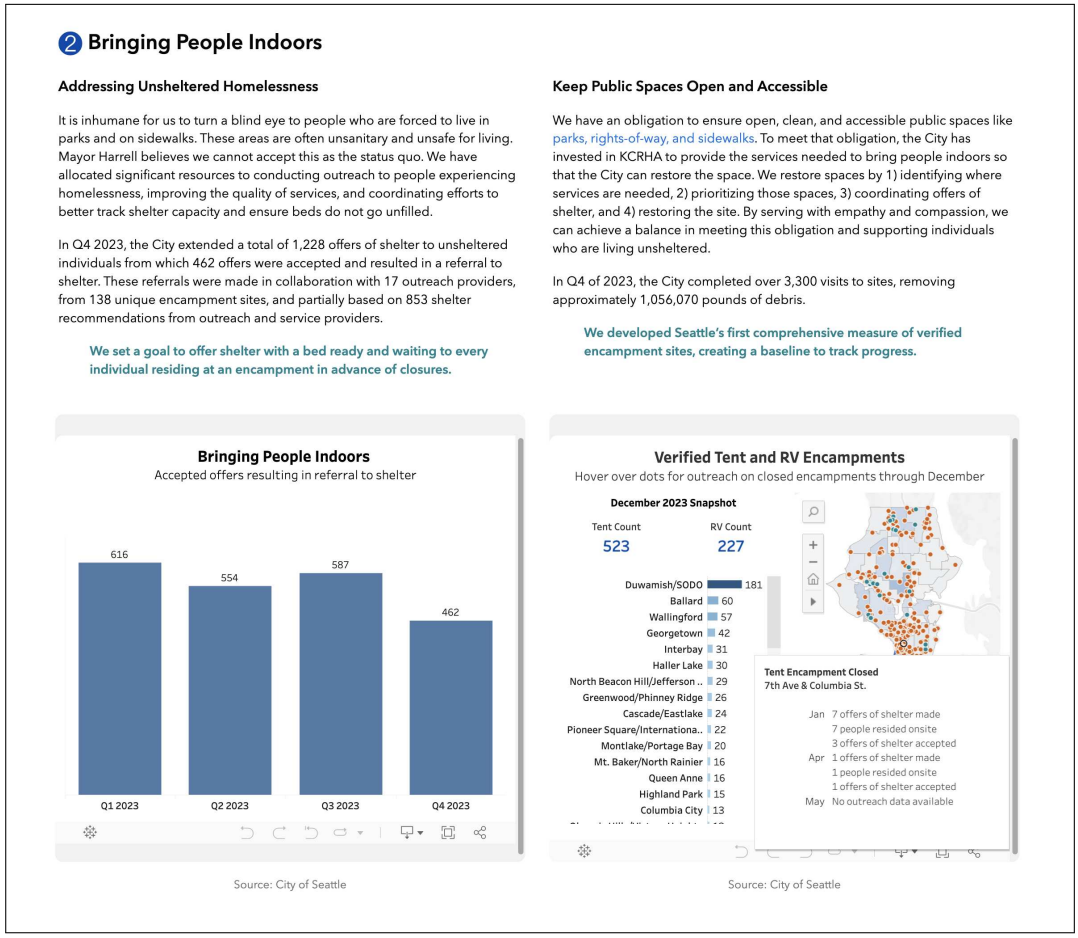

Fig. 1. The "Bringing People Indoors" section of the data dashboard for the One Seattle Homelessness Action Plan as seen on March 12, 2024. On this page, the City compares shelter offers given and shelter offers accepted and states they have a goal of "having a bed ready" before camp "closures." There is no mention of what type of shelter offers are actually made, nor of what happens if there is no shelter space available. The figure on the right is a map of verified tent and RV camps, with information on each time that site has been "closed." In many cases, there is "no outreach data available" on the closure. Also in this section one can find the city's estimate of the "debris" removed from these camps, which amounts to 1,056,070 pounds for Q4 of 2023.

community, such as Stop the Sweeps, Sweepless in Seattle, and Services not Sweeps. While these groups employ a diversity of tactics to push for the ending of sweeps and protecting the people being swept until then, we will specifically focus on the strategies used by Stop the Sweeps to contest how the City represents and discusses their policies and practices around sweeping.

As a collective, Stop the Sweeps (StS) focuses primarily on "mobiliz[ing] to challenge the violence directed at our unhoused neighbors during sweeps" [143]. In practice, this means showing up at encampments slated to be swept in the days before the sweep as well as the day of the sweep in order to support unhoused neighbors in moving their camps elsewhere. By being present at sweeps, however, their support serves a dual purpose—they are also able to observe and report out on the

abuses, violence, and waste of public funds that occurs at these traumatizing events. Reviewing the writings, multimedia projects, and social media posts of StS, it is abundantly clear how its members lean on all the elements of social movement epistemologies described previously to create and share knowledge that builds up an alternative knowledge frame around Seattle's sweeps. Drawing from a deeply contextual and relational engagement with the experience of homelessness as well as the city's response to it, StS uses their social media accounts to document case after case of routinized violence that get collapsed into singular data points of the OSHAP dashboard.

While we did not find any cases where StS explicitly addresses or contests the OSHAP dashboard, they regularly dispute the types of language the City uses when describing sweeps—language that underlies much of the data collected and represented by OSHAP. By actually interacting on their own terms with the world the data is meant to measure, they reveal how this language (and the associated data collection) is not capturing reality. Returning to the terms "shelter offers," "debris removed," and "camp closures," we draw from StS social media postings to see how they have been problematized, even if indirectly.

Starting with "shelter offers," StS describe numerous cases where the offers of shelter given, such as congregate shelters (overnight shelters where everyone is housed in a large open space), are completely untenable for the people being swept. StS's central argument is that any one-size fits all offer of shelter is not the compassionate act the city makes it out to be. StS also describes how for many, these "shelter offers" only come during a sweep, where it is likely that even if offers are accepted, the people being swept will not have enough time to gather up and move with all of their things before they are thrown away. In StS's words, relying on sweeps to actually make these "shelter offers" means that "They always have to throw away peoples' belongings, tow their homes, and destroy their lives before getting them into tiny homes or shelters" [144]. Taking this knowledge frame into account, the city's comparison between data on "shelter offers given" and "shelter offers accepted" becomes highly suspect, as contrasting these two clearly responsibilizes "service-resistant" individuals for choosing living on the street as the best of the available options instead of acknowledging the role the city plays in determining what those options even are.

This brings us to the city's unspoken definition of "cleared debris" on their data dashboard. At the time of writing [November 2023], the dashboard states: "In Q2 of 2023, the City completed over 2,628 visits to sites, removing approximately 1,631,455 million pounds of debris" [105]. While there is no available insight into how exactly the City defines debris, it is likely that a significant portion of the statistic comes from weighing the dump trucks after sweeps and site visits. Turning to StS's documentation of sweeps, it becomes clear that much of what is being disposed of is not refuse from encampments, but rather people's belongings and life necessities. The first image in Fig 2 shows an example of one such case, where city employees are disposing of a disabled unhoused person's mobility aid [145]. In the same post, StS describes how if encampment residents are not present at the time of the sweep, their tent and all of their belongings are simply disposed of [145]. Similarly, StS also describes how whatever residents are unable to pack up in the time allotted to them by police and city workers all gets disposed of [144]. From StS's proposed knowledge frame, "1,631,455 million pounds of debris" [105] is a self-congratulatory measurement that conceals an antagonistic, violent reality of dispossession.

Looking to "closures," we see another term that StS's documentation problematizes. Compounding with the number of "shelter offers" turned down for being unsuitable, StS's communications regularly convey how it is quite common for people not to be offered any kind of shelter at all (See, e.g., [147]). As such, most people being swept are forced to move with nowhere else in particular to go. This results in the kinds of situations described in the second image in Fig 2, where people are just aimlessly and violently pushed around the city. In this sense, the City's definition of a "closure" is called into question as nothing is really resolved, communities are just broken up and

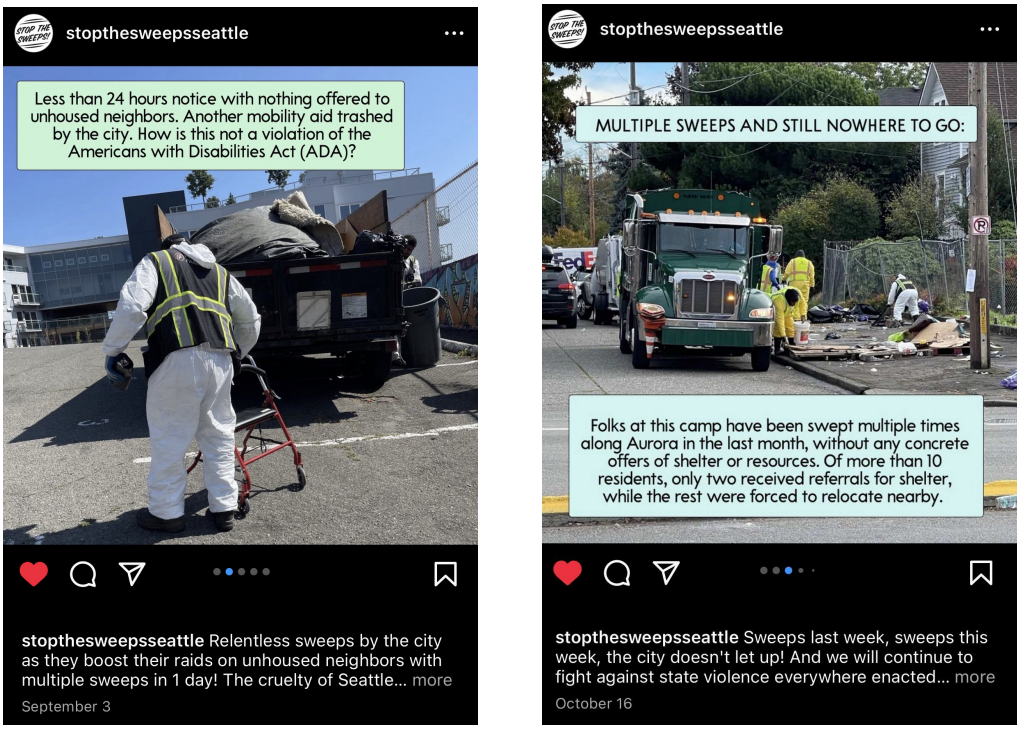

Fig. 2. Example Instagram posts where StS presents an alternative knowledge frame of what is happening at sweeps.

dispersed throughout the city, often in exceptionally challenging times such as the peak of the cold season [146]. Through these, StS constructs an understanding of how the city greatly increases the risks of an already dangerous life of living on the street by forced exposure to the elements and the dissolution of geographic community. These connections between city actions and policies and the risks of being unhoused go completely unacknowledged in any of the data the city collects.

In each of these ways, the knowledge created and shared by StS directly undermines the City's attempts at data-driven world-making, without ever needing to engage with the data directly. We see activists carrying out tactics in this way as embodying a form of *generative refusal* [130, 155]. They refuse the terms of debate set by the city's data—"shelter offers" being turned down is not the problem—and establish an alternative frame for the problem—there being nowhere for those being swept to go. While we could certainly imagine a range of data activist projects that might try to contest the city's data more directly, such as a counterdata collection effort to make the insufficiencies of shelter offers more apparent, it is unclear what this would offer over the current strategies of resistance. If the group were not experienced in navigating epistemological ambiguities, the project could easily start to pull attention away from the knowledge creation and sharing already happening on the ground as well as from the life-saving work of sweep support. Instead, how can we build off the knowledge work already taking place and affirm that social movement epistemologies are very often up to the task of contesting data-centric ones, even when movement groups do not necessarily see their knowledge-production as responding to data-centrism?

5 Discussion

In this section, we draw out insights and features from the three case studies that are especially relevant to our argument. For the first two case studies, we highlight how data activism can oscillate between reinforcing epistemological hegemony and supporting epistemological heterogeneity, and for the third case study, we connect it to what we see as generative epistemological refusal. Synthesizing these insights, in §5.3, we propose a framework of epistemological navigation that informs the implications that we suggest in §6.

5.1 Navigating Between Epistemological Hegemony and Heterogeneity

From the SJC and the AEMP case studies, we see a spectrum of possibilities for how epistemological ambiguity is navigated. In both of these cases, we saw how, with time, data activists found more and more ways that leaning on data at the expense of other ways of knowing led to a kind of "data drift" [16] into the reductionistic, detached view of data-centrism.

In the case of South African social auditors, both overarching strategy decisions and moment-to-moment on the ground decisions tended to reinforce the data-centric notion that data makes for the best or most effective way of knowing, even when this was not a belief held by many of the auditors. From this case study we can see how taking on such data-centric projects runs the risk of functionally leading to greater exclusion of community members *and* alternative ways of understanding and communicating social issues, even when these projects reach some measure of success. That being said, we can also see how this process of paving over other knowledges is acutely felt by the activists themselves (e.g., in their warning about the data trap), as their interactions with the community made apparent to them what was missing from the data and what the data could not be mobilized to change.

In the case of AEMP, we saw how the organizers actively and persistently tried to problematize datafied ways of knowing, even as they sought to use them to build collective power. AEMP extensively experiments with how to put data in conversation with other epistemologies, and through this process has demonstrated a number of ways of how data-focused activism can actually help elevate other ways of knowing. We see this as actively carving out space for epistemological heterogeneity, though, as the members of AEMP often refrain [5, 94], this is hard work that requires extensive critical reflection and listening to community (core parts of a more relational epistemology) as well as strong enough background in collecting and using data to be aware of how practices might be tweaked or developed to make more room for other ways of knowing.

Taking these cases together, we can learn from activsts' own explicitly stated and implicitly demonstrated learnings from their practice of data activism and experiencing the realities of working with datafication. In both of these cases, we see an increased understanding over time of the ways that data actually ends up being useful, and, similarly, of the ways that initial understandings of enumerative data carries false promises of change. With regards to the epistemic value of data specifically, we saw how SJC and the AEMP collective found more and more ways that quantified data could not represent what they care to represent, whether it was the data they received from the city or the data they collected themselves. We see this shift as representing a deepening of their *critical epistemic understandings of data*. Additional to this, we see both groups develop a better sense for how data can help to facilitate change, and how it tends to be of much more use in mobilizing communities than in getting institutions to acquiesce to their view of things, echoing the arguments of Crooks and Currie [33] for engaging in more *agonistic* data practices. We see this as representing a deepening of their *critical political understandings of data*. Through these case studies, we can see that the development of these kinds of critical understandings of data can facilitate more strategic and movement-aligned navigations of epistemological ambiguity.

As data-centric ways of knowing become more dominant and passively accepted, however, there will likely be more people joining movements who are eager to quickly and experimentally attempt to appropriate data towards movement goals without these critical understandings, as we see in prior studies with self-identified data activists [66] and in cases of students and experts "parachuting in" to try and use their training "for good" [68]. Despite this, it is the data activist's responsibility to be most aware of how data-centric ways of knowing might pave over others in the actual day-to-day work of supporting movements with data. Going forward then, we likely need more focus on how to effectively support data activists in the early stages of these kinds of epistemological navigations. Seeing how challenging they can be in practice, we also have to ask whether this is something all activists should be expected to learn how to do in order to assert alternative knowledge frames in the face of datafication. In other words, should building up this kind of proficiency be a primary goal of CSCW research that seeks to support activists in their use of data, or are there other modes of contesting data-centrism and the institutions that govern through it? Our third case study, points to one such mode, that of generative epistemological refusal, as discussed next.

5.2 Generative Epistemological Refusal

Through the StS case study, we can see that even when policy decisions and the processes of service provision become steeped in datafied logics, it is possible to fight back by putting forward a strong enough story of how the data misses the point to start building a base of opposition. Tying this into our broader conversation around how non-data-centric epistemologies can be elevated while empowering people to navigate a datafied world, we can see how collective, epistemic strategies of refusal can go beyond the very data-centric empowerments in the framework of data as stakes/data-critique-as-repertoire.

As Shapiro et al. [128] suggests in their descriptions of the *data treadmill*, in circumstances where data is being used to justify oppressive and inhumane policies, pushing back against data cannot be achieved by solely calling for reforms to data practices—the strategy needs to incorporate challenges to the policies that the data supports. Similarly, providing an alternative framing of the issue through data would be asking those being targeted by the city government's violent policies to take on the burden of proving the harm being caused to them [33, 112]. Instead, contesting data-centrism, at least in part, needs to involve efforts that explicitly offer up alternative views of the world generated through other epistemologies and that push for these as valid ways to prioritize around solving social issues, and this is what we refer to as *generative epistemological refusal*.

We see this proposal as building on other calls for refusal as a key mechanism of working towards data ethics and data justice [9, 27, 61]. Where these strands of work primarily speak to data professionals and the steps they can take to refuse to engage in and recreate the harms of data-centric approaches to social problems, however, our focus on StS speaks to the potential for those without training in data practices to exercise their own mechanisms of generative refusal.

This kind of approach can draw inspiration from many traditions of struggle, including Indigenous scholars' and activists' call to reject a "politics of recognition," understood as the range of political strategies that seek to use approved and reclaimed tools of colonial governments to acquire various rights and recognitions from the State [31]. As Mvskoke scholar Laura Harjo describes, "A politics-of-recognition narrative requires Indigenous people to discuss themselves in terms of Western knowledge and taxonomies of land. These are hollowed-out narratives about Indigenous places that over time become naturalized stories and commonly received knowledge" [70, p.24]. Instead, Harjo, Coulthard [31], and Simpson [130] all argue for a practice of renewed self-recognition within Indigenous communities, building up alternative modes of self-governance and world-building that

carve a path towards the future stemming from Indigenous epistemologies and ontologies, or, in other words, generative refusal. While the actual practices of Indigenous peoples' struggles for sovereignty cannot and should not be extracted from these contexts, there is much to be learned from these theoretical analyses of when and how attempts to speak the language of power can undermine productive struggle. Similarly, we can learn from these cases how the "refusal of colonial, capitalist, neoliberal, and extractive epistemic logics and practices leads to alternatives, including (re)connection to other knowledges and a (re)balancing of knowledge relations" [29, p.60].

Looking specifically at the case of OSHAP, we can tie the determination of various metrics of importance to what Indigenous scholar Scott Richard Lyons calls "rhetorical imperialism," or "the ability of dominant powers to assert control of others by setting the terms of debate" [89, p.452]. In his argument on how Indigenous *rhetorical sovereignty* is put into practice, Lyons [89] describes how "refusal has never meant giving up or going away; rather, a No over there can sometimes enable Yes over here." In a similar way, we do not see Stop the Sweeps refusal of the City of Seattle's data-driven governance scheme as ceding the terms of debate and refusing to further engage, rather it is part of the construction of an alternative forum for understanding that establishes relational knowledges as *the* key terms of debate. In other words, they are providing the "Yes over here," where that 'Yes' is not directed through "appropriate channels," but through constructing an alternative knowledge frame with the unhoused neighbors of Seattle and their allies. This in turn exerts pressure indirectly on the local government's epistemological commitments when people are less likely to take data-driven claims of the effectiveness of the City's homelessness plans at face value. More specifically, we see StS's on-the-ground engagement making clear that 1) the epistemic value of the City's data on homelessness was highly suspect, and 2) the consensus the City was trying to build using this data would lead to continued violence against unhoused neighbors.

5.3 Towards a Synthesized Framework of Epistemological Navigation

In the case studies on social audits and the Anti-Eviction Mapping Project, we saw how attempts at navigating epistemological ambiguity can sometimes lead to reinforcing data-centrism, while at other times it can support a flourishing of epistemological heterogeneity. In the case study on Stop the Sweeps, we saw how it is possible to respond to data-centrism by generatively refusing the world it constructs and proposing an alternative through other epistemological frames. Taking these three possibilities together, in this section, we distill a framework to help make sense of how activist responses to data-centrism and datafication can at times reinforce the epistemic position of data and destabilize it at others.

Toward bringing our insights from the the three case studies together, we construct a simple model, inspired by the metaphor of field line diagrams in physics and engineering (e.g., to visualize magnetic fields), in Figure 3 to demonstrate the various factors at play in supporting epistemological heterogeneity. To start, we need to consider what it means more practically for data-centric epistemologies to occupy a hegemonic position. While we have focused primarily on practices of knowledge production and operationalization so far, it is important to note how an epistemology can become sociotechnically infrastructural—one can find it in the technologies that one uses, the institutions one interacts with, the policies one abides by, and the language that one uses, among many other components of everyday life. The assault on other ways of knowing, then, is coming from all sides. In this way, even if activists set out to use datafied tactics with values and goals unaligned with data-centrism, it is likely impossible to be aware of the myriad infrastructural, social, and political encounters, expectations, and tensions that will exert pressure on those tactics to realign with data-centrism in various ways, as seen in the social audit case study and to a lesser degree in the AEMP case study. Taking all of these pressures together, we can conceptualize the

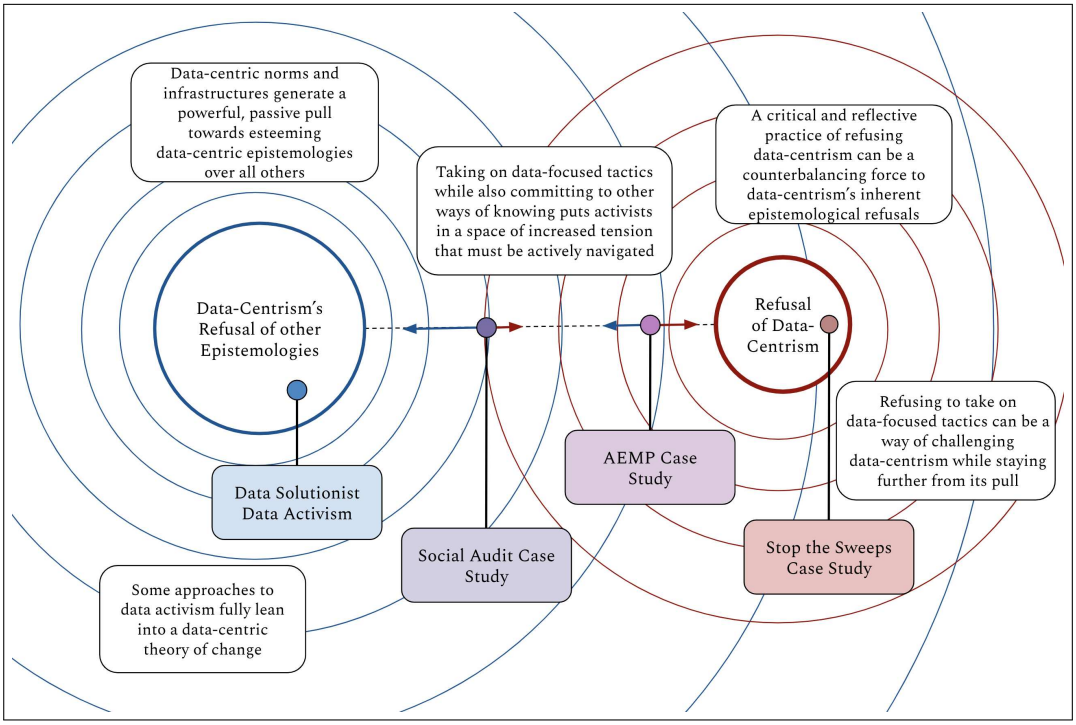

Fig. 3. Drawing from metaphorical diagrams of physical forces such as magnetism and gravity, we propose a heuristic model of epistemological navigation. In this model, we can see data-centrism's refusal of other ways of knowing as a powerful, attractive force created and enacted by various beliefs, tools, norms, and other forms of sociotechnical infrastructure. As a possible countering force, we have the refusal of data-centrism and its various constituent elements. When activists take up datafied tactics, they end up caught between these two forces. Thus, we theorize that they must also hone their capacities for selectively refusing elements of data-centrism so as to not be pulled into implicitly diminishing other epistemologies.

hegemony of data-centric epistemologies as a powerful force that induces the suppression, or even refusal, of other ways of knowing.

Thus, in our proposed model, we pose data-centrism's refusal of alternative ways of knowing as a strong pulling force that can be counteracted by the refusal of data-centrism itself. Importantly, this does not have to mean refusing data technologies wholesale, rather it means discerning and refusing aspects of data-centrism that would lead to the suppression of other ways of knowing. As data plays a more significant role in activist strategy, activists are likely to expose themselves to greater pressures from data-centrism, meaning that a stronger force of refusing data-centrism must be built up to navigate data-centrism's effective refusal of the other epistemologies that activists lean on. There is, however, no guaranteed way of determining what actions, big or small, might pave over other ways of knowing within a social movement or contribute to the hegemony of data-centric epistemologies more broadly. As such, the biggest open question of this model is clearly how to generate and hone this force of data-centrism refusal? We can gain some insight into this question by analogizing it with Ruth Wilson Gilmore's warning of "reformist reforms," or reforms that reinforce the existence of the system causing harm [64]. In our case, we can similarly heuristically see how some appropriations of data-tactics might reinforce the hegemonic position of data, both within

movements and in the broader contexts they operate within. From this comparison, we can ask similar questions of the use of data to how we might interrogate whether a reform is reformist, such as: Will our use of data entrench the role of data in addressing this issue? What will the increased energy and attention put into data be pulled away from? Can we imagine a way of addressing this issue that leads instead to more reliance on community knowledge? Though certainly not sufficient on their own, we argue that two important factors in being able to surface questions such as these (and respond to them) are the critical epistemological and political understandings of data and its relation to power discussed in §5.1. The deeper the understanding of the ways data is used to represent matters of concern (and how these representations can be intertwined with the workings of power), the better the sense for when data should be turned away from in order to prop up other ways of knowing.

While we present each of the case studies as a seemingly static dot on this model, it is also important to acknowledge that they are in constant movement. In both of the case studies looking at navigations of epistemological ambiguity, we saw activists gain awareness of the various ways that datafied tactics were either disempowering them and/or leading them to shift their priorities in ways unaligned with their values. In response, both groups modified their approaches, as seen by the social auditors' warnings of "data traps" in the guidebook they produced and by AEMP's move towards more narrative forms of mapping. Clearly, then, data activist groups can be constantly honing and expanding the ways they refuse data-centrism and try to esteem other ways of knowing.

Furthermore, we should be clear that we are not arguing that refusal requires a generalized critique of data-centrism—there are likely many cases where a close enough intimacy with the issue being organized around makes apparent enough that the epistemic value of data is suspect and that the use of data is clearly political. The steps towards refusal in these cases, however, could look different if movement members were actively making connections between how data shapes one political issue and the overall picture of how data-centrism upholds the current distribution of power. Thus, in the next section we will explore the implications of this model.

6 Implications

Equipped with our framework of epistemological navigation, in this section we explore some possible implications for pedagogy, design, and research.

6.1 Implications for Pedagogy: Prioritizing Critical Data Consciousness

As mentioned in §2.3, one of the primary ways that CSCW and HCI researchers (as well as researchers from numerous other fields) have been looking to support activists in navigating datafied political arenas has been through raising both technical capacities for making use of data and critical understandings of data and the role it plays in reproducing dominant worldviews [48, 77, 110, 127]. This work builds off and contributes to broader conversations around what Tygel and Kirsch [156, p.109] call *critical data literacy*, or "pedagogical methodology oriented to understand reality so as to transform it."

Given our findings, it would follow that developing a critical data pedagogy that resists, or at least does not reinforce, the hegemony of data-centric epistemologies is likely to require fostering capacities for generative epistemological refusal in order to support epistemological heterogeneity. As such, we should not presume that the best approach to critical data pedagogies will be around recuperating data strategies for activism, or at least we should not start there if we do not want to create another set of data double binds [33, 80, 111]. This paper has so far provided two significant possible interventions for the Critical Data Literacy literature that enable a shift of focus: Firstly, we have demonstrated the importance of attending to the politics of the epistemologies one relies on to navigate a datafied world. Secondly, we have shown how there are a range of ways to navigate

datafied political arenas that do not require technical data literacies. In §5.1, we described what we called critical political and epistemological understandings of data, and in §5.3 we showed how these can make up an important foundation for knowing when and how to refuse data-centrism's rejection of other ways of knowing. Thus, in this section we would like to briefly explore the possibility of prioritizing these two kinds of critical understandings of data, and thereby the capacity for refusal, as a first step for popular data education initiatives that also seek to challenge cognitive injustice. This is a unique approach, as for almost all proposed types and methods of Critical Data Literacy, interacting directly with datasets and data representations is used as an entryway for more critical understandings of data, and only a few focus *only* on "critical education about datafication" [123, p.4].

Building off Jansen's [76] claim that the *critical* in Critical Data Literacy is not *political*, our first and most significant intervention is a call to focus critical data pedagogies on the central political question of how datafication changes what is conceived of as valid knowledge, and, as such, who can have what kind of voice on political issues. In other words, our findings and analysis suggest a need to shift away from a focus on data, and towards a focus on knowledge frames (constructed with and without data) and their politics. In terms of what this would mean for Critical Data Literacy efforts, we suggest that this shift can be largely powered by the two-prong focus on the epistemological dimension of critical data literacy, which starts with the critical awareness that data-centric epistemologies are not inherently objective or truthful, and the political dimension of critical data literacy, which starts with the understanding that these epistemologies only form the foundation of consensus-making and world-building because there is power behind them—not due to some inherent quality of data. By focusing on these two dimensions, we assert that it is possible to cultivate awareness of (and capacity for inspecting) how data-centric epistemologies are used to pave over other ways of knowing and make clearer what these perspectives are missing. Furthermore, this lays the foundation for an understanding that activists' attempts to appropriate data tactics run this risk of paving over other ways of knowing as well, which can increase discernment of when it is worthwhile to either acquire or seek out the greater technical data proficiency required to take on data-as-repertoire activist projects and campaigns. Alternatively, if datafied tactics are already being used, the epistemological and political dimensions of critical data literacy are also helpful in navigating epistemological ambiguity in ways that support epistemological heterogeneity.

This brings us to our second intervention: we should not uniformly assume that strategic, effective action around datafication requires technical proficiency with data. In light of the first intervention, we should be wary of the extent to which the *critical* aspects of a Critical Data Literacy program rely on building up a working proficiency in a dominant epistemology. We argue that just knowing that one can say rightfully say no is a powerful thing to learn in and of itself. To contextualize this intervention, Critical Data Literacies are generally centered around empowering learners to take some kind of *transformative action*, and usually this means learning either how to use data towards one's own political ends [156] or how to regain control over one's data [109]. While some work on Critical Data Literacies does suggest there might be some risk in attempting to take back power through data-centric transformative action, we find a general hope or belief that the combination of critical training and alternative political goals from powerful institutions will prevent the pitfalls of data-centric epistemologies from befalling activists themselves. In other words, many proposals rely on the assumption that "technical skill is subordinated to the ultimate social, cultural, and political goal" [116, p.11]. Our model from the previous section, however, shows how this kind of action can indeed reinforce, not transform, the hegemony of data-centrism both within social movements and more broadly. If "data literacy opposes the sense of disempowerment that datafication harbors" [100, p.107], we should still ask whether the empowerment offered through data literacy reinforces the need for others to be "empowered" in the same way. As such, we are interested in exploring the

possibility of generative refusal as a foundational mode of transformative action that is accessible at all levels of proficiency with data and makes room for other ways of knowing and being.

Should these interventions be followed, however, it is not clear whether the resulting educational efforts would be aimed at "critical data literacy" or something else. Turning back to Freire, whose work is foundational to many Critical Data Literacy approaches, clearly what we are focused on here is not so much data proficiency, but the process of "*conscientização*" (frequently translated to *critical consciousness*), or "learning to perceive social, political, and economic contradictions, and to take action against the oppressive elements of reality" [60, p.35] with regards to data-centrism. While Freire's original proposal of critical literacy used literacy education as an entry point for a generalized *conscientização* (and vice versa), it is not immediately clear that an analogous case can be made for learning data skills [108]. And even if it can be, there is a significant question of whether being expected to learn to think and speak with data can itself be a form of epistemic violence for those that have already been on the receiving end of "data violence" and the dehumanization of data-centrism [74]. Critics of Freire have pointed this out as a risk even when it comes to textual literacy, as Indigenous communities are not necessarily empowered by learning to speak and write in the colonizer's tongue [78]. It has been argued that in these cases, literacy (especially in the colonizer's tongue) itself can serve as a vehicle for colonization. With such a possibility in mind, it may be worthwhile to imagine critical data education that decenters technical components (often used interchangeably with literacy) and centers consciousness (in the Freirian sense) instead.

Taking the two interventions from above together, the question then arises, what would prioritizing *critical data consciousness* look like? Or, in other words, how feasible is it to focus on critical political and epistemological understandings of data without first building up a data-as-repertoire focused technical data literacy? To do this, we see potential in starting with a focus on "data settings" [87, 88], or the broader social, political, infrastructural contexts within which data is serving a political role, such as the example of data-driven homelessness policy and governance in Seattle. This is in line with the frequent recommendation in the Critical Data Literacy literature to ground pedagogical exercises in settings that learners are familiar with so they have some initial investment and can have a deeper intuition for how the world is transformed into data [1, 37, 39, 110]. In the example of Stop the Sweeps, we demonstrated how the knowledge they are generating and sharing is already a sufficient foundation to start contesting the data-driven arguments and policies of the City, but the issue is whether activists in this kind of scenario always know that they are equipped to do that. Thus, a primary focus of critical data consciousness pedagogies is likely to be adding to the confidence that these kinds of transformative action are already possible without the need to take on new types of skills or trainings. More so than "teaching" about data and datafication, then, the goal of critical data consciousness pedagogies is to encourage critical reflection on the knowledge already held about a datafied social issue in order to piece together an understanding of data-centrism and how power operates through it.

6.2 Implications for Research and Design: Affirming Epistemological Heterogeneity

Beyond efforts that are explicitly educational, the importance of supporting capacities for refusing data-centrism and navigating epistemological ambiguity extends to the ways that CSCW and HCI scholars both conduct research in community with activist and grassroots groups and seek to design technologies for/with them.

When thinking about research with and about activists working and collaborating with data, we argue it is important to uncover and consider the epistemic norms and values that are already present. Any intervention, suggested or implemented, should be considered in light of its potential impact on the epistemic balance that may already be present in the empirical context of the research. As especially seen in our first two case studies, interventions that adopted a more data-centric approach

ended up distorting the pre-existing collective ways of knowing. Furthermore, as we saw from the third case study, a data-centered approach may not be needed at all; data-centered narratives do not necessarily need to be countered with rhetoric that adopts a similar epistemic orientation. This echoes broader arguments in [7, 62, 162] that HCI, and CSCW more specifically should consider the ways in which research supports and studies collaborative responses to technology from below and not just from above. As with other technological artifacts (e.g., collaboration platforms), when introducing data practices, systems, artifacts to a grassroots space, our work suggests that it is crucial to be attuned to the ways that such interventions may attract trust and deference in ways that are unwarranted and might pull attention away from other ways of knowing the community. The introduction of new data practices, systems, or artifacts in a collaborative activist community may introduce epistemological ambiguity, and the plan for such introductions should include possible strategies to assist the navigation of this resultant epistemological ambiguity.

For technology design in particular, our work points to the importance of considering the epistemic orientation of tools and toolkits used in contexts such as social movements. As we saw in the AEMP case study, a data visualization tool that only allows for data as literal points on the map represents an epistemological stance that is different from what is represented by a tool that allows for those points to expand to show information beyond numerical data (e.g., video interviews). As new tools are designed, or existing tools are deployed, these epistemic considerations are worth paying attention to. This particular implication echoes Rieder and Simon's argument that "modern data analysis software is often thoroughly opaque, with a phenomenology that emphasizes both uniformity and impersonality," [120, p. 4] and our work suggests that this can potentially have a significant impact on the epistemic structure that may pre-exist in a given social movement.

Through these implications, we build on and extend prior CSCW/HCI research that has sought to study ways to support social movement organizers in making use of data. Our implications add further considerations in this space and highlight how a different path is also possible.

7 Limitations and future work

To start, we acknowledge the clear limitations of our case study method, especially that of relying on public and published material, given how our goal was to attend to the types of practices and decisions that make up *navigations of epistemological ambiguity*. Without direct engagements with the activists from each case study, we are likely missing out on a majority of these practices and decisions. Even so, we do not see this as undermining our analysis, because the goal of these case studies was primarily to demonstrate a range of situations where epistemological ambiguity arises and to start making sense of how activists recognize and respond to them in ways that are value aligned. One significant limitation of the Stop the Sweeps case study in particular is that we were not able to provide the kind of in-depth view on specific epistemological decisions being made and practices being followed that we tried to provide in the other two case studies. Future work can help to better illuminate how these strategies of both functional and intentional refusal of data-centrism by non-data-activists arise and play out in practice.

Another significant limitation of our overall study was our explicit focus on epistemology, as this likely omitted from view many of the material dimensions of activism in the age of datafication. We do not want this work to be misinterpreted as claiming that the epistemological dimensions are always the most important ones to attend to—we see our vein of analysis as presenting just one slice of the total picture that can hopefully illuminate new areas of concern and possibly provide some guidance for how to navigate them. For just one example of what matters of concern might be missed through this lens, a major focus of AEMP's recent work has been on how to protect the data they produce and aggregate from appropriation by the very landlord industrial complex they seek to challenge [95]. While there are likely to be some questions regarding epistemology in this

struggle, the most important questions here clearly concern ownership of and access to the data that might be used to deny people housing.

A final limitation to discuss here is that we did not go into a more granular breakdown of the "forces of data-centrism." Many have theorized about the heterogeneous nature of hegemonic ideologies and knowledges [141], but we felt that presenting a more complete breakdown of the elements of data-centrism's hegemony would go beyond the scope of this study. As such, our analysis is limited by how much we are able to say about what is needed to reveal, and then refuse or resist, the various ways that data-centrism shapes society and our efforts to change it. Instead, we treat these dimensions relatively holistically. While this is sufficient for our broad theoretical goal of raising awareness about this range of epistemological tensions, our hope is that more in-depth studies will be able to identify and call attention to the more specific kinds of struggle against data-centrism that emerge for activists in datafied political arenas.

8 Conclusion

Through the course of this paper we have made several contributions. First, we introduced the analytical lens of *navigations of epistemological ambiguity* to attend to the practices and decisions of data activists that they come to in order to negotiate between different epistemological values and norms. Through the (re-)analysis of two case studies from the Data Activism literature, we saw how using data towards activists' ends can variably contribute to or detract from social movements' epistemological heterogeneity. Second, as activists cannot exactly escape the world-making of data-centric institutions, we argued it is important to consider a broader range of how they are responding to and retaining political agency in the face of datafication than just looking at their engagements directly around data. One such form of political action that prior studies on similar topics have missed is activism which targets and contests the knowledge frames produced by data-centric epistemologies without leaning on systems of quantification themselves, what we called *generative epistemological refusal*. As we showed, this form of activism does not fit within the often cited schema of data-as-stakes or data-as-repertoire activism [14] because it makes the world that data is used to create, not data itself, the object of resistance. Third, through our analysis of the three case studies, we showed how many of the critical, contextual understandings of data and datafication that would lead to a wholesale refusal of data-centric knowledge frames are the same that can lead to a careful application of data activism that supports epistemological heterogeneity. As such, we point to how improving the capacity for generative epistemological refusal in turn supports navigating epistemological ambiguity (should activists employ data activist strategies) through selective acts of refusal. Fourth, having identified the importance of the capacity for generative epistemological refusal, we point towards *critical data consciousness* as a goal of critical data education that does not necessarily require increasing technical data literacy. Finally, we provided some recommendations for how researchers and designers more broadly can use our findings to account for and affirm epistemological heterogeneity in research and practice.

Taken all together, our work suggests that data justice is likely to require cognitive justice [159]. Toward this end, we must seek out new ways to not just appropriate and instrumentalize the epistemic tools of power, but to situate them cautiously and carefully within the heterogeneous epistemologies of our desired futures. Our work attempts to tie together a number of threads from theory and practice, offering what we hope will be a starting point for future scholars and practitioners considering the question of value-aligned activism in an era of data-centrism.

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References

[1] Arthur Acolin and Annette M. Kim. 2022. Teaching Data Justice: Algorithmic Bias and Critical Spatial Analysis in Urban Planning Education. *Journal of Planning Education and Research* (Sept. 2022), 0739456X221116356. doi:10.1177/0739456X221116356

[2] Adriana Alvarado Garcia, Alyson L. Young, and Lynn Dombrowski. 2017. On Making Data Actionable: How Activists Use Imperfect Data to Foster Social Change for Human Rights Violations in Mexico. *Proceedings of the ACM on Human-Computer Interaction* 1, CSCW (Dec. 2017), 19:1–19:19. doi:10.1145/3134654

[3] Anonymous. 2024. The 2024 Zapatista Encuentro: A Report-back with Footage of a Play about the Movement to Stop Cop City. https://crimethinc.com/2024/01/18/the-2024-zapatista-encuentro-report-back-and-footage.

[4] Anti-Eviction Mapping Project. [n. d.]. Ellis Act Evictions in San Francisco. https://www.antievictionmappingproject.net/ellis.html.

[5] Anti-Eviction Mapping Project. 2021. *Counterpoints: A San Francisco Bay Area Atlas of Displacement & Resistance.* PM Press.

[6] Payal Arora and Hallam Stevens. 2019. Data-Driven Models of Governance across Borders: Datafication from the Local to the Global. *First Monday* 24, 4 (April 2019). doi:10.5210/fm.v24i4.9831

[7] Mariam Asad and Christopher A. Le Dantec. 2015. Illegitimate Civic Participation: Supporting Community Activists on the Ground. In *Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work & Social Computing (CSCW '15).* Association for Computing Machinery, New York, NY, USA, 1694–1703. doi:10.1145/2675133.2675156

[8] Sarah H. Awad, Brady Wagoner, and Vlad Glaveanu. 2017. The Street Art of Resistance. In *Resistance in Everyday Life*, Nandita Chaudhary, Pernille Hviid, Giuseppina Marsico, and Jakob Waag Villadsen (Eds.). Springer Singapore, Singapore, 161–180. doi:10.1007/978-981-10-3581-4_13

[9] Chelsea Barabas. 2022. Refusal in Data Ethics: Re-Imagining the Code Beneath the Code of Computation in the Carceral State. *Engaging Science, Technology, and Society* 8, 2 (Sept. 2022), 35–57. doi:10.17351/ests2022.1233

[10] Chelsea Barabas, Karthik Dinakar, Joichi Ito, Madars Virza, and Jonathan Zittrain. 2018. Interventions over Predictions: Reframing the Ethical Debate for Actuarial Risk Assessment. *Proceedings of the 1st Conference on Fairness, Accountability and Transparency* 81 (2018), 62–76. arXiv:1712.08238

[11] Erica Barnett. 2022. Most City Shelter "Referrals" Don't Lead to Shelter, Police Preemptively Barricade Encampment Against Protests, City Says It Can't Risk Handing HOPE Team to County. https://publicola.com/2022/03/18/most-city-shelter-referrals-dont-lead-to-shelter-police-preemptively-barricade-encampment-against-protests-city-says-it-cant-risk-handing-hope-team-to-county/.

[12] Erica Barnett. 2022. New Homelessness "Data Dashboard" Highlights Harrell Administration's Priorities—Including Sweeps. https://publicola.com/2022/06/01/new-homelessness-data-dashboard-highlights-harrell-administrations-priorities-including-sweeps/.

[13] Witney Battle-Baptiste and Britt Rusert. 2018. *W. E. B. Du Bois's Data Portraits: Visualizing Black America.* Chronicle Books, Hudson, NY.

[14] Davide Beraldo and Stefania Milan. 2019. From Data Politics to the Contentious Politics of Data. *Big Data & Society* 6, 2 (July 2019), 205395171988596. doi:10.1177/2053951719885967

[15] Evan Blake, Nancy Odendaal, and Ola Söderström. 2023. Beyond 'Data Positivism': Civil Society Organizations' Data and Knowledge Tactics in South Africa. In *Data Power in Action.* Bristol University Press, Chapter Data Power in Action, 204–226.

[16] Chris Bopp, Ellie Harmon, and Amy Voida. 2017. Disempowered by Data: Nonprofits, Social Enterprises, and the Consequences of Data-Driven Work. In *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems (CHI '17).* Association for Computing Machinery, New York, NY, USA, 3608–3619. doi:10.1145/3025453.3025694

[17] Geoffrey C. Bowker and Susan Leigh Star. 2000. *Sorting Things Out: Classification and Its Consequences.* MIT Press.

[18] Heather Broomfield and Lisa Reutter. 2022. In Search of the Citizen in the Datafication of Public Administration. *Big Data & Society* 9, 1 (Jan. 2022), 20539517221089302. doi:10.1177/20539517221089302

[19] Simone Browne. 2015. *Dark Matters: On the Surveillance of Blackness.* Duke University Press, Durham.

[20] Nerea Calvillo. 2018. Political Airs: From Monitoring to Attuned Sensing Air Pollution. *Social Studies of Science* 48, 3 (June 2018), 372–388. doi:10.1177/0306312718784656

[21] Dashiel Carrera, Ufuoma Ovienmhada, Safa Hussein, and Robert Soden. 2023. The Unseen Landscape of Abolitionism: Examining the Role of Digital Maps in Grassroots Organizing. *Proceedings of the ACM on Human-Computer Interaction* 7, CSCW2 (Oct. 2023), 365:1–365:29. doi:10.1145/3610214

[22] Jennifer S. Carrera, Sarah Bailey, Ronnie Wiggins, Cynthia Watkins, Laura Sullivan, Melissa Mays, and Kent Key. 2023. Community Science as Resistance to Neoliberal Scientific Praxis. *Environmental Justice* 16, 1 (Feb. 2023), 54–61. doi:10.1089/env.2021.0099

[23] William K. Carroll. 2015. Modes of Cognitive Praxis in Transnational Alternative Policy Groups. *Globalizations* 12, 5 (Sept. 2015), 710–727. doi:10.1080/14747731.2014.1001231

[24] Will Casey. 2022. Council Member Opposes Mayor's Plan to Spend $1 Million on Unproven Surveillance Tech. https://www.thestranger.com/news/2022/09/29/78549071/mayor-harrell-proposes-1-million-for-questionable-surveillance-tech.

[25] Graeme Chesters. 2012. Social Movements and the Ethics of Knowledge Production. *Social Movement Studies* 11, 2 (April 2012), 145–160. doi:10.1080/14742837.2012.664894

[26] Aziz Choudry. 2015. *Learning Activism: The Intellectual Life of Contemporary Social Movements*. University of Toronto Press.

[27] Marika Cifor, Patricia Garcia, TL Cowan, Jasmine Rault, Tonia Sutherland, Anita Say Chan, Jennifer Rode, Anna Lauren Hoffmann, Niloufar Salehi, and Lisa Nakamura. 2019. Feminist Data Manifest-No.

[28] Jonathan Cinnamon. 2020. Attack the Data: Agency, Power, and Technopolitics in South African Data Activism. *Annals of the American Association of Geographers* 110, 3 (May 2020), 623–639. doi:10.1080/24694452.2019.1644991

[29] Donna Cormack and Paula Toko King. 2023. Beyond the "Abyssal Line": Knowledge, Power, and Justice in a Datafied World. In *The Oxford Handbook of Indigenous Sociology*, Maggie Walter, Tahu Kukutai, Angela A. Gonzales, and Robert Henry (Eds.). Oxford University Press, 0. doi:10.1093/oxfordhb/9780197528778.013.35

[30] Tobias Coughlin-Bogue. 2022. Harrell Keeps Mayoral Tradition Alive with New Homelessness Plan. https://www.realchangenews.org/news/2022/06/08/harrell-keeps-mayoral-tradition-alive-new-homelessness-plan.

[31] Glen Sean Coulthard. 2014. *Red Skin, White Masks: Rejecting the Colonial Politics of Recognition*. University of Minnesota Press, Minneapolis.

[32] Roderic Crooks. 2017. Representationalism at Work: Dashboards and Data Analytics in Urban Education. *Educational Media International* 54, 4 (Oct. 2017), 289–303. doi:10.1080/09523987.2017.1408267

[33] Roderic Crooks and Morgan Currie. 2021. Numbers Will Not Save Us: Agonistic Data Practices. *The Information Society* 0, 0 (May 2021), 1–19. doi:10.1080/01972243.2021.1920081

[34] Morgan Currie, Britt S Paris, Irene Pasquetto, and Jennifer Pierre. 2016. The Conundrum of Police Officer-Involved Homicides: Counter-data in Los Angeles County. *Big Data & Society* 3, 2 (Dec. 2016), 2053951716663566. doi:10.1177/2053951716663566

[35] Morgan E. Currie, Britt S. Paris, and Joan M. Donovan. 2018. What Difference Do Data Make? Data Management and Social Change. *Online Information Review* 43, 6 (Jan. 2018), 971–985. doi:10.1108/OIR-02-2018-0052

[36] Craig M. Dalton and Tim Stallmann. 2018. Counter-Mapping Data Science. *The Canadian Geographer / Le Géographe canadien* 62, 1 (2018), 93–101. doi:10.1111/cag.12398

[37] Aayushi Dangol and Sayamindu Dasgupta. 2023. Constructionist Approaches to Critical Data Literacy: A Review. In *Proceedings of the 22nd Annual ACM Interaction Design and Children Conference (IDC '23)*. Association for Computing Machinery, New York, NY, USA, 112–123. doi:10.1145/3585088.3589367

[38] Bill Daniell and Amy Hagopian. 2023. Seattle Must Ban Homeless Encampment Sweeps During Winter. https://www.thestranger.com/guest-editorial/2023/07/21/79086573/ban-homeless-encampment-sweeps-during-winter.

[39] Sayamindu Dasgupta and Benjamin Mako Hill. 2023. Designing for Critical Algorithmic Literacies. In *Algorithmic Rights and Protections for Children*, Mizuko Itō, Remy Cross, Karthik Dinakar, and Candice L. Odgers (Eds.). The MIT Press, Cambridge, Massachusetts.

[40] Donatella della Porta and Elena Pavan. 2017. Repertoires of Knowledge Practices: Social Movements in Times of Crisis. *Qualitative Research in Organizations and Management: An International Journal* 12, 4 (Jan. 2017), 297–314. doi:10.1108/QROM-01-2017-1483

[41] Lina Dencik, Joanna Redden, Arne Hintz, and Harry Warne. 2019. The 'Golden View': Data-Driven Governance in the Scoring Society. *Internet Policy Review* 8, 2 (2019), 1–24. doi:10.14763/2019.2.1413

[42] Alain Desrosières. 1998. *The Politics of Large Numbers: A History of Statistical Reasoning*. Harvard University Press, Cambridge, Mass.

[43] Giovanna Di Chiro. 1997. Local Actions, Global Visions: Remaking Environmental Expertise. *Frontiers: A Journal of Women Studies* 18, 2 (1997), 203–231. doi:10.2307/3346975 jstor:3346975

[44] Jessa Dickinson, Mark Díaz, Christopher A. Le Dantec, and Sheena Erete. 2019. "The Cavalry Ain't Coming in to Save Us": Supporting Capacities and Relationships through Civic Tech. *Proceedings of the ACM on Human-Computer Interaction* 3, CSCW (Nov. 2019), 123:1–123:21. doi:10.1145/3359225

[45] Catherine D'Ignazio. Forthcoming. *Counting Feminicide: Data Feminism in Action.* MIT Press.

[46] Catherine D'Ignazio, Isadora Cruxên, Helena Suárez Val, Angeles Martinez Cuba, Mariel García-Montes, Silvana Fumega, Harini Suresh, and Wonyoung So. 2022. Feminicide and Counterdata Production: Activist Efforts to Monitor and Challenge Gender-Related Violence. *Patterns* 3, 7 (July 2022), 100530. doi:10.1016/j.patter.2022.100530

[47] Catherine D'Ignazio and Lauren F. Klein. 2020. *Data Feminism.* The MIT Press, Cambridge, Massachusetts.

[48] Carl DiSalvo, Annabel Rothschild, Lara L. Schenck, Ben Rydal Shapiro, and Betsy DiSalvo. 2024. When Workers Want to Say No: A View into Critical Consciousness and Workplace Democracy in Data Work. *Proceedings of the ACM on Human-Computer Interaction* 8, CSCW1 (April 2024), 1–24. doi:10.1145/3637433

[49] Mitchell L. Doucette, Christa Green, Jennifer Necci Dineen, David Shapiro, and Kerri M. Raissian. 2021. Impact of ShotSpotter Technology on Firearm Homicides and Arrests Among Large Metropolitan Counties: A Longitudinal Analysis, 1999–2016. *Journal of Urban Health* 98, 5 (Oct. 2021), 609–621. doi:10.1007/s11524-021-00515-4

[50] Graham Dove, Jack Shanley, Camillia Matuk, and Oded Nov. 2023. Open Data Intermediaries: Motivations, Barriers and Facilitators to Engagement. *Proceedings of the ACM on Human-Computer Interaction* 7, CSCW1 (April 2023), 78:1–78:22. doi:10.1145/3579511

[51] Sarah Elwood and Victoria Lawson. 2020. The Arts of Poverty Politics: Real Change. *Social & Cultural Geography* 21, 5 (June 2020), 579–601. doi:10.1080/14649365.2018.1509111

[52] Sheena Erete and Jennifer O. Burrell. 2017. Empowered Participation: How Citizens Use Technology in Local Governance. In *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems (CHI '17)*. Association for Computing Machinery, New York, NY, USA, 2307–2319. doi:10.1145/3025453.3025996

[53] Sheena Erete, Emily Ryou, Geoff Smith, Khristina Marie Fassett, and Sarah Duda. 2016. Storytelling with Data: Examining the Use of Data by Non-Profit Organizations. In *Proceedings of the 19th ACM Conference on Computer-Supported Cooperative Work & Social Computing (CSCW '16)*. Association for Computing Machinery, New York, NY, USA, 1273–1283. doi:10.1145/2818048.2820068

[54] Arturo Escobar. 2008. Territories of Difference: Place, Movements, Life, Redes. In *Territories of Difference*. Duke University Press. doi:10.1515/9780822389439

[55] Cristina Espinosa. 2022. Reducing Power Disparities in Large-Scale Mining Governance through Counter-Expertise: A Synthesis of Case Studies from Ecuador. *The Extractive Industries and Society* 9 (March 2022), 101000. doi:10.1016/j.exis.2021.101000

[56] Eviction Lab. [n. d.]. The Eviction Lab. https://evictionlab.org/.

[57] Ron Eyerman and Andrew Jamison. 1991. *Social Movements: A Cognitive Approach.* Penn State Press.

[58] Irene Farnsworth, Erin McElroy, Alex Werth, Terra Graziani, and Katy Guimond. 2024. Project Launch: Bay Area Regional Eviction and Legal Services Study.

[59] Todd Feathers. 2021. Police Are Telling ShotSpotter to Alter Evidence From Gunshot-Detecting AI.

[60] Paulo Freire. 2000. *Pedagogy of the Oppressed* (30th anniversary ed ed.). Continuum, New York.

[61] Patricia Garcia, Tonia Sutherland, Niloufar Salehi, Marika Cifor, and Anubha Singh. 2022. No! Re-imagining Data Practices Through the Lens of Critical Refusal. *Proceedings of the ACM on Human-Computer Interaction* 6, CSCW2 (Nov. 2022), 1–20. doi:10.1145/3557997

[62] Sucheta Ghoshal. 2020. *A Grassroots Praxis of Technology: View from The South.* Ph. D. Dissertation. Georgia Institute of Technology, Atlanta, GA.

[63] Sucheta Ghoshal, Rishma Mendhekar, and Amy Bruckman. 2020. Toward a Grassroots Culture of Technology Practice. *Proceedings of the ACM on Human-Computer Interaction* 4, CSCW1 (May 2020), 1–28. doi:10.1145/3392862

[64] Ruth Wilson Gilmore. 2007. *Golden Gulag: Prisons, Surplus, Crisis, and Opposition in Globalizing California.* UC Press, Oakland, CA.

[65] Francisco Guevara-Hernández, J. Ovando-Cruz, Nils McCune, R. Pinto-Ruiz, F.J. Medina-Jonapá, and Heriberto Castro. 2010. Participatory Power Mapping: A Collective Identification of Development Actors in a Small Cattle Village of Chiapas, Mexico. 1 (Sept. 2010), 5–28.

[66] Miren Gutiérrez and Stefania Milan. 2019. Playing with Data and Its Consequences. *First Monday* 24, 1 (Jan. 2019). doi:10.5210/fm.v24i1.9554

[67] Kevin Guyan. 2022. *Queer Data: Using Gender, Sex and Sexuality Data for Action.* Bloomsbury Academic, London.

[68] Brett A. Halperin and Erin McElroy. 2023. Temporal Tensions in Digital Story Mapping for Housing Justice: Rethinking Time and Technology in Community-Based Design. In *Proceedings of the 2023 ACM Designing Interactive Systems Conference*. ACM, Pittsburgh PA USA, 2469–2488. doi:10.1145/3563657.3596088

[69] Sarah T Hamid. 2020. Community Defense: Sarah T. Hamid on Abolishing Carceral Technologies. *Logic Magazine* 11 (2020), 1–24.

[70] Laura Harjo. 2019. *Spiral to the Stars: Mvskoke Tools of Futurity* (first paperback edition ed.). The University of Arizona Press, Tucson.

[71] Timothy Harris. 2017. Neutralizing Homelessness: Federal Policy and the Depoliticization of Poverty. *Urban Geography* 38, 3 (March 2017), 341–347. doi:10.1080/02723638.2016.1247599

[72] Arielle Hesse, Patrick Bresnihan, and James White. 2023. The Data Treadmill: Water Governance and the Politics of Pollution in Rural Ireland. *Local Environment* 0, 0 (Jan. 2023), 1–17. doi:10.1080/13549839.2023.2169668

[73] Arne Hintz, Lina Dencik, and Karin Wahl-Jorgensen. 2018. *Digital Citizenship in a Datafied Society.* John Wiley & Sons.

[74] Anna Lauren Hoffmann. 2018. Data Violence and How Bad Engineering Choices Can Damage Society. https://medium.com/s/story/data-violence-and-how-bad-engineering-choices-can-damage-society-39e44150e1d4.

[75] Leah Horgan. 2022. The Everyday of Future-Avoiding: Administering the Data-Driven Smart City. *Information & Culture* 57, 2 (July 2022), 169–196. doi:10.7560/IC57204

[76] Fieke Jansen. 2021. Critical Is Not Political: The Need to (Re)Politicize Data Literacy. *Seminar.net* 17, 2 (Aug. 2021). doi:10.7577/seminar.4280

[77] Britney Johnson, Ben Rydal Shapiro, Betsy DiSalvo, Annabel Rothschild, and Carl DiSalvo. 2021. Exploring Approaches to Data Literacy Through a Critical Race Theory Perspective. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems (CHI '21).* Association for Computing Machinery, New York, NY, USA, 1–15. doi:10.1145/3411764.3445141

[78] Célèste J. Kee and Davin J. Carr-Chellman. 2019. Paulo Freire, Critical Literacy, and Indigenous Resistance. *Educational Studies* 55, 1 (Jan. 2019), 89–103. doi:10.1080/00131946.2018.1562926

[79] Os Keyes. 2022. Can Data Do Good? *Logic(s) Magazine* 18 (Dec. 2022).

[80] Vera Khovanskaya, Phoebe Sengers, and Lynn Dombrowski. 2020. Bottom-Up Organizing with Tools from On High: Understanding the Data Practices of Labor Organizers. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems.* ACM, Honolulu HI USA, 1–13. doi:10.1145/3313831.3376185

[81] Dorothy Kidd. 2019. Extra-Activism: Counter-Mapping and Data Justice. *Information, Communication & Society* 22, 7 (June 2019), 954–970. doi:10.1080/1369118X.2019.1581243

[82] Rob Kitchin. 2022. *The Data Revolution: A Critical Analysis of Big Data, Open Data & Data Infrastructures* (second edition ed.). Sage Publications, Los Angeles, CA.

[83] Rob Kitchin, Tracey P. Lauriault, and Gavin McArdle. 2015. Knowing and Governing Cities through Urban Indicators, City Benchmarking and Real-Time Dashboards. *Regional Studies, Regional Science* 2, 1 (Jan. 2015), 6–28. doi:10.1080/21681376.2014.983149

[84] kollektiv orangotango+ (Ed.). 2018. *This Is Not an Atlas: A Global Collection of Counter-Cartographies.* transcript Verlag. doi:10.14361/9783839445198

[85] Rebecca Lawrence and Rasmus Kløcker Larsen. 2017. The Politics of Planning: Assessing the Impacts of Mining on Sami Lands. *Third World Quarterly* 38, 5 (May 2017), 1164–1180. doi:10.1080/01436597.2016.1257909

[86] Philip A. Loring, Hannah L. Harrison, Valencia Gaspard, Sarah Minnes, and Helen M. Baulch. 2021. Science, Data, and the Struggle for Standing in Environmental Governance. *Society & Natural Resources* 34, 12 (Dec. 2021), 1584–1601. doi:10.1080/08941920.2021.1979150

[87] Yanni Alexander Loukissas. 2019. *All Data Are Local: Thinking Critically in a Data-Driven Society.* MIT Press. doi:10.7551/mitpress/11543.001.0001

[88] Yanni Alexander Loukissas and Jude Mwenda Ntabathia. 2021. Open Data Settings: A Conceptual Framework Explored Through the Map Room Project. *Proceedings of the ACM on Human-Computer Interaction* 5, CSCW2 (Oct. 2021), 357:1–357:24. doi:10.1145/3479501

[89] Scott Richard Lyons. 2000. Rhetorical Sovereignty: What Do American Indians Want from Writing? *College Composition and Communication* 51, 3 (2000), 447–468. doi:10.2307/358744 jstor:358744

[90] P. C. Mahalanobis. 1950. Why Statistics? *Sankhyā: The Indian Journal of Statistics (1933-1960)* 10, 3 (1950), 195–228. jstor:25048028

[91] Manissa M. Maharawal and Erin McElroy. 2018. The Anti-Eviction Mapping Project: Counter Mapping and Oral History toward Bay Area Housing Justice. *Annals of the American Association of Geographers* 108, 2 (March 2018), 380–389. doi:10.1080/24694452.2017.1365583

[92] Kyle Matthews. 2020. Social Movements and the (Mis)Use of Research: Extinction Rebellion and the 3.5% Rule. *Interface* 12 (July 2020), 591–615.

[93] Viktor Mayer-Schönberger and Kenneth Cukier. 2013. *Big Data: A Revolution That Will Transform How We Live, Work, and Think.* Houghton Mifflin Harcourt.

[94] Erin McElroy. 2022. Digital Cartographies of Displacement: Data as Property and Property as Data. *ACME: An International Journal for Critical Geographies* 21, 4 (May 2022), 357–371.

[95] Erin McElroy. 2023. Dis/Possessory Data Politics: From Tenant Screening to Anti-Eviction Organizing. *International Journal of Urban and Regional Research* 47, 1 (2023), 54–70. doi:10.1111/1468-2427.13150
[96] Colin McFarlane and Jonathan Silver. 2017. The Poolitical City: "Seeing Sanitation" and Making the Urban Political in Cape Town. *Antipode* 49, 1 (2017), 125–148. doi:10.1111/anti.12264
[97] Ulises A. Mejias and Nick Couldry. 2019. Datafication. *Internet Policy Review* 8, 4 (Nov. 2019). doi:10.14763/2019.4.1428
[98] Amanda Meng, Carl DiSalvo, and Ellen Zegura. 2019. Collaborative Data Work Towards a Caring Democracy. *Proceedings of the ACM on Human-Computer Interaction* 3, CSCW (Nov. 2019), 42:1–42:23. doi:10.1145/3359144
[99] Metropolitan Transportation Commission. 2024. Kickoff: Bay Area Eviction & Legal Services Study. https://mtc.ca.gov/news/kickoff-bay-area-eviction-legal-services-study.
[100] Stefania Milan and Lonneke van der Velden. 2016. *The Alternative Epistemologies of Data Activism.* SSRN Scholarly Paper ID 2850470. Social Science Research Network, Rochester, NY.
[101] Timothy Mitchell. 2002. *Rule of Experts: Egypt, Techno-Politics, Modernity.* University of California Press.
[102] Dmitry Muravyov. 2022. Doubt to Be Certain: Epistemological Ambiguity of Data in the Case of Grassroots Mapping of Traffic Accidents in Russia. *Social Movement Studies* 0, 0 (Oct. 2022), 1–17. doi:10.1080/14742837.2022.2128327
[103] Michael Newman. 1999. Learning, Education and Social Action. In *Understanding Adult Education and Training* (2 ed.). Routledge.
[104] Dennis Nguyen and Bjorn Beijnon. 2023. The Data Subject and the Myth of the 'Black Box' Data Communication and Critical Data Literacy as a Resistant Practice to Platform Exploitation. *Information, Communication & Society* 0, 0 (April 2023), 1–17. doi:10.1080/1369118X.2023.2205504
[105] Office of the Mayor, City of Seattle. Retrieved [11/19/2023]. One Seattle Homelessness Action Plan. https://homelessness.seattle.gov.
[106] Seyi Olojo. 2024. Counterdata. In *Keywords of the Datafied State*, Jenna Burrell, Ranjit Singh, and Patrick Davison (Eds.). Data and Society, Rochester, NY.
[107] Gwen Ottinger. 2010. Buckets of Resistance: Standards and the Effectiveness of Citizen Science. *Science, Technology, & Human Values* 35, 2 (March 2010), 244–270. doi:10.1177/0162243909337121
[108] Luci Pangrazio and Julian Sefton-Green. 2020. The Social Utility of 'Data Literacy'. *Learning, Media and Technology* 45, 2 (April 2020), 208–220. doi:10.1080/17439884.2020.1707223
[109] Luci Pangrazio and Neil Selwyn. 2019. 'Personal Data Literacies': A Critical Literacies Approach to Enhancing Understandings of Personal Digital Data. *New Media & Society* 21, 2 (Feb. 2019), 419–437. doi:10.1177/1461444818799523
[110] Firaz Peer and Carl DiSalvo. 2019. Workshops as Boundary Objects for Data Infrastructure Literacy and Design. In *Proceedings of the 2019 on Designing Interactive Systems Conference (DIS '19)*. Association for Computing Machinery, New York, NY, USA, 1363–1375. doi:10.1145/3322276.3322330
[111] Lucy Pei, Benedict Salazar Olgado, and Roderic Crooks. 2022. Narrativity, Audience, Legitimacy: Data Practices of Community Organizers. In *Extended Abstracts of the 2022 CHI Conference on Human Factors in Computing Systems (CHI EA '22)*. Association for Computing Machinery, New York, NY, USA, 1–6. doi:10.1145/3491101.3519673
[112] Jennifer Pierre, Roderic Crooks, Morgan Currie, Britt Paris, and Irene Pasquetto. 2021. Getting Ourselves Together: Data-centered Participatory Design Research & Epistemic Burden. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*. Association for Computing Machinery, New York, NY, USA, 1–11.
[113] Francesca Polletta. 2009. Storytelling in Social Movements. In *Culture, Social Movements, and Protest*. Routledge.
[114] Alison B. Powell. 2021. *Undoing Optimization: Civic Action in Smart Cities.* Yale University Press.
[115] Aare Puussaar, Ian G. Johnson, Kyle Montague, Philip James, and Peter Wright. 2018. Making Open Data Work for Civic Advocacy. *Proceedings of the ACM on Human-Computer Interaction* 2, CSCW (Nov. 2018), 143:1–143:20. doi:10.1145/3274412
[116] Juliana Raffaghelli. 2023. Pathways for Social Justice in the Datafied Society: Reconsidering the Educational Response. *Media Education* 14, 1 (April 2023), 5–14. doi:10.36253/me-13383
[117] Joanna Redden, Lina Dencik, and Harry Warne. 2020. Datafied Child Welfare Services: Unpacking Politics, Economics and Power. *Policy Studies* 41, 5 (Sept. 2020), 507–526. doi:10.1080/01442872.2020.1724928
[118] Paola Ricaurte. 2019. Data Epistemologies, Coloniality of Power, and Resistance. *Television & New Media* 20 (2019), 350–365. doi:10.1177/1527476419831640
[119] Britta Ricker, Jonathan Cinnamon, and Yonn Dierwechter. 2020. When Open Data and Data Activism Meet: An Analysis of Civic Participation in Cape Town, South Africa. *The Canadian Geographer / Le Géographe canadien* 64, 3 (2020), 359–373. doi:10.1111/cag.12608
[120] Gernot Rieder and Judith Simon. 2016. Datatrust: Or, the Political Quest for Numerical Evidence and the Epistemologies of Big Data. *Big Data & Society* 3, 1 (June 2016), 2053951716649398. doi:10.1177/2053951716649398
[121] Jared Rossouw. 2015. True, Reliable and Valid? : Data and Community Experience in the Case of the Janitorial Service Social Audit. (2015).

[122] Annabel Rothschild, Amanda Meng, Carl DiSalvo, Britney Johnson, Ben Rydal Shapiro, and Betsy DiSalvo. 2022. Interrogating Data Work as a Community of Practice. *Proceedings of the ACM on Human-Computer Interaction* 6, CSCW2 (Nov. 2022), 307:1–307:28. doi:10.1145/3555198
[123] Ina Sander. 2023. Critical Datafication Literacy – a Framework for Educating about Datafication. *Information and Learning Sciences* 125, 3/4 (Nov. 2023), 270–291. doi:10.1108/ILS-06-2023-0064
[124] Boaventura de Sousa Santos. 2016. *Epistemologies of the South: Justice against Epistemicide.* Routledge, London New York.
[125] James C. Scott. 2020. *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed.* Yale University Press.
[126] Jason Seawright and John Gerring. 2008. Case Selection Techniques in Case Study Research: A Menu of Qualitative and Quantitative Options. *Political Research Quarterly* 61, 2 (June 2008), 294–308. doi:10.1177/1065912907313077
[127] Ben Rydal Shapiro, Amanda Meng, Annabel Rothschild, Sierra Gilliam, Cicely Garrett, Carl DiSalvo, and Betsy DiSalvo. 2022. "Bettering Data": The Role of Everyday Language and Visualization in Critical Novice Data Work. *Educational Technology & Society* 25, 4 (2022), 109–125. jstor:48695985
[128] Nicholas Shapiro, Nasser Zakariya, and Jody Roberts. 2017. A Wary Alliance: From Enumerating the Environment to Inviting Apprehension. *Engaging Science, Technology, and Society* 3 (Sept. 2017), 575–602. doi:10.17351/ests2017.133
[129] Nicholas Shapiro, Nasser Zakariya, and Jody Roberts. 2020. Beyond the Data Treadmill: Environmental Enumeration, Justice, and Apprehension. In *Toxic Truths.* Manchester University Press. doi:10.7765/9781526137005.00030
[130] Leanne Simpson. 2017. *As We Have Always Done: Indigenous Freedom through Radical Resistance.* University of Minnesota Press, Minneapolis London.
[131] Catherine Smith, Claire M. Vajdic, and Niamh Stephenson. 2023. Techno-Legal Expertise and the Datafication of the State: Big Data, Accountability and the Value of a Social License with Institutional Roots. *Futures* 154 (Dec. 2023), 103263. doi:10.1016/j.futures.2023.103263
[132] Social Justice Coalition. 2013. *REPORT OF THE KHAYELITSHA 'MSHENGU' TOILET SOCIAL AUDIT.* Technical Report.
[133] Social Justice Coalition. 2013. *WASTEFUL EXPENDITURE: REPORT OF THE KHAYELITSHA REFUSE REMOVAL AND AREA CLEANING SOCIAL AUDIT.* Technical Report. Capetown, South Africa.
[134] Social Justice Coalition. 2014. *Our Toilets Are Dirty: Report of the Social Audit into the Janitorial Service for Communal Flush Toilets in Khayelitsha, Cape Town.* Technical Report. Cape Town, South Africa.
[135] Social Justice Coalition, Ndifuna Ukwazi, and International Budget Partnership. 2015. *A Guide to Conducting Social Audits in South Africa.* Technical Report. International Budget Partnership.
[136] Robert Soden and Nate Kauffman. 2019. Infrastructuring the Imaginary: How Sea-Level Rise Comes to Matter in the San Francisco Bay Area. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems (CHI '19).* Association for Computing Machinery, New York, NY, USA, 1–11. doi:10.1145/3290605.3300516
[137] Johan Söderberg, Stefania Milan, and Giuseppina Pellegrino. 2019. Datafication from Below: Epistemology, Ambivalences, Challenges. *Tecnoscienzia* 10, 1 (2019), 27.
[138] Tony Sparks. 2010. Broke Not Broken: Rights, Privacy, and Homelessness in Seattle. *Urban Geography* 31, 6 (Aug. 2010), 842–862. doi:10.2747/0272-3638.31.6.842
[139] Gayatri Chakravorty Spivak. 2004. Can the Subaltern Speak? In *Imperialism.* Routledge.
[140] Alissa Starodub. 2015. Post-Representational Epistemology in Practice: Processes of Relational Knowledge Creation in Autonomous Social Movements. *Interface* 7, 2 (2015), 161–191.
[141] Mark C. J. Stoddart. 2007. Ideology, Hegemony, Discourse: A Critical Review of Theories of Knowledge and Power. *Social Thought and Research* 28 (2007), 191–225. doi:10.17161/STR.1808.5226
[142] Stop the Sweeps. 2023. Sweeps Kill — and Seattle's Reckless Pace Has Consequences. https://www.realchangenews.org/news/2023/05/03/sweeps-kill-and-seattle-s-reckless-pace-has-consequences.
[143] Stop the Sweeps Seattle. [n. d.]. Stop the Sweeps Seattle. https://www.facebook.com/STSSeattle/.
[144] Stop The Sweeps Seattle and [@stopthesweepsseattle]. 2023. "Happy Halloween, Cops Are Here to Terrorize More and More People! ...".
[145] Stop The Sweeps Seattle and [@stopthesweepsseattle]. 2023. "Sweeps Last Week, Sweeps This Week, the City Doesn't Let up! ...".
[146] Stop The Sweeps Seattle and [@stopthesweepsseattle]. 2024. "Check in with Your Neighbors, Especially in This Freezing Weather! ...".
[147] Stop The Sweeps Seattle and [@stopthesweepsseattle]. 2024. "The City Continues to Violently Sweep Camps throughout Seattle, but Giving Them Nowhere Safe to Go...".
[148] Angela Storey. 2014. Making Experience Legible: Spaces of Participation and the Construction of Knowledge in Khayelitsha. *Politikon* 41, 3 (Sept. 2014), 403–420. doi:10.1080/02589346.2014.975935

[149] Helen Sullivan. 2011. 'Truth' Junkies: Using Evaluation in UK Public Policy. *Policy & Politics* 39, 4 (Oct. 2011), 499–512. doi:10.1332/030557311X574216

[150] Cella M Sum, Anh-Ton Tran, Jessica Lin, Rachel Kuo, Cynthia L Bennett, Christina Harrington, and Sarah E Fox. 2023. Translation as (Re)Mediation: How Ethnic Community-Based Organizations Negotiate Legitimacy. In *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (CHI '23)*. Association for Computing Machinery, New York, NY, USA, 1–14. doi:10.1145/3544548.3581280

[151] Leonard D. Jr. Taylor. 2020. Neoliberal Consequence: Data-driven Decision Making and the Subversion of Student Success Efforts. *The Review of Higher Education* 43, 4 (2020), 1069–1097. doi:10.1353/rhe.2020.0031

[152] Tenants Together and Anti-Eviction Mapping Project. 2014. *The Speculator Loophole: Ellis Act Evictions in San Franscisco.* Technical Report.

[153] Anh-Ton Tran, Ashley Boone, Christopher A. Le Dantec, and Carl DiSalvo. 2022. Careful Data Tinkering. *Proceedings of the ACM on Human-Computer Interaction* 6, CSCW2 (Nov. 2022), 431:1–431:29. doi:10.1145/3555532

[154] Anh-Ton Tran, Grace Guo, Jordan Taylor, Katsuki Chan, Elora Raymond, and Carl DiSalvo. 2024. Situating Data Sets: Making Public Data Actionable for Housing Justice. doi:10.1145/3613904.3642452 arXiv:2402.12505 [cs]

[155] Eve Tuck and K. Wayne Yang. 2014. Unbecoming Claims: Pedagogies of Refusal in Qualitative Research. *Qualitative Inquiry* 20, 6 (July 2014), 811–818. doi:10.1177/1077800414530265

[156] Alan Freihof Tygel and Rosana Kirsch. 2016. Contributions of Paulo Freire for a Critical Data Literacy: A Popular Education Approach. *The Journal of Community Informatics* 12, 3 (Oct. 2016), 108–121. doi:10.15353/joci.v12i3.3279

[157] Jose van Dijck. 2014. Datafication, Dataism and Dataveillance: Big Data between Scientific Paradigm and Ideology. *Surveillance & Society* 12, 2 (May 2014), 197–208. doi:10.24908/ss.v12i2.4776

[158] Liesbet van Zoonen. 2020. Data Governance and Citizen Participation in the Digital Welfare State. *Data & Policy* 2 (Jan. 2020), e10. doi:10.1017/dap.2020.10

[159] Shiv Visvanathan. 2005. Knowledge, Justice and Democracy. In *Science and Citizens*. Zed Books, London, 83–92.

[160] Amy Voida, Ellie Harmon, and Ban Al-Ani. 2011. Homebrew Databases: Complexities of Everyday Information Management in Nonprofit Organizations. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '11)*. Association for Computing Machinery, New York, NY, USA, 915–924. doi:10.1145/1978942.1979078

[161] Amy Voida, Ellie Harmon, Willa Weller, Aubrey Thornsbury, Ariana Casale, Samuel Vance, Forrest Adams, Zach Hoffman, Alex Schmidt, Kevin Grimley, Luke Cox, Aubrey Neeley, and Christopher Goodyear. 2017. Competing Currencies: Designing for Politics in Units of Measurement. In *Proceedings of the 2017 ACM Conference on Computer Supported Cooperative Work and Social Computing (CSCW '17)*. Association for Computing Machinery, New York, NY, USA, 847–860. doi:10.1145/2998181.2998209

[162] Cedric Deslandes Whitney, Teresa Naval, Elizabeth Quepons, Simrandeep Singh, Steven R Rick, and Lilly Irani. 2021. HCI Tactics for Politics from Below: Meeting the Challenges of Smart Cities. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems (CHI '21)*. Association for Computing Machinery, New York, NY, USA, 1–15. doi:10.1145/3411764.3445314

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