

This One Does Not Go Up to 11: The Quantified Self Movement as an Alternative Big Data Practice

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Big data is often seen in terms of powerful institutions managing the actions of populations through data. This ethnography of the Quantified Self movement, where participants collect extensive data about their own bodies, identifies practices that go beyond simply internalizing predetermined frameworks. The QS movement attracts the most hungrily panoptical of the data aggregation businesses in addition to people who have developed their own notions of analytics that are separate from, and in relation to, dominant practices of firms and institutionalized scientific production. Their practices constitute an important modality of resistance to dominant modes of living with data, an approach that we call "soft resistance." Soft resistance happens when participants assume multiple roles as project designers, data collectors, and critical sense-makers who rapidly shift priorities. This constant shifting keeps data sets fragmented and thus creates material resistance to traditional modes of data aggregation. It also breaks the categories that make traditional aggregations appear authoritative. This enables participants to partially yet significantly escape the frames created by the biopolitics of the health technology industry.

Introduction

In the summer of 2012, as part of our ongoing research, we attended a local Quantified Self (or QS) "meetup." Held in the offices of an Internet startup company, the evening featured speakers sharing data visualizations and people talking about their experiments with data. One speaker, Angela, told the story of how she had been working in a job she thought she loved. Around the same time, she

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downloaded an app that "pinged" her several times a day, asking her to rate her mood. After a while, she discovered that her mood score when at work was "awful." On the basis of the evidence revealed by her mood data—she was not as happy as she had thought—Angela revised her sense of her own job satisfaction and eventually quit.

Another speaker, Charlie, had been using a device that tracked the cardinal direction he was facing at any given moment. He showed us a densely plotted block of pixels that looked like a fragmented hard drive. Colored pixels indicated the direction he had been facing every few seconds over the past three years, with red for south, blue for west, and so on. The pixels were arranged in a stream of dots that bore no resemblance to a standard time series plot. Charlie and the audience together gazed at it silently for a few moments until somebody asked what the long string of yellow pixels in the upper left was. Charlie looked back at the image for a moment and then, with a kind of elation, told us that must have been the time he drove up to see his parents, several hours north. A palpable "Ohhhh" spread over the audience as we stared with renewed interest in the image, searching for other treasures, strings of similar pixels representing, say, a trip to the shore, or his daily commute. Later, Charlie told us that he felt this kind of tracking showed him what his perspective was at a given time in his life.

It seems easy to dismiss as frivolous an app that could reveal that one wasn't as happy as one thought, or the notion that cardinal directions might capture one's perspective in life in the most literal way. If we pause to look past the surface appearance, however, it becomes apparent that much more is at stake. People like Charlie and Angela are important voices in the current academic discussion of "big data," because, regardless of how exotic they may at first appear, they represent a profoundly different way of knowing what data is, why it is important, who gets to interpret it, and to what ends. The QS movement attracts the most hungrily panoptical of the data aggregation businesses in addition to people who have developed their own notions of analytics that are separate from, and in relation to, dominant practices of firms and institutionalized scientific production. The Quantified Self movement proliferates diversity, and, as such, offers the possibility of a much more nuanced understanding of what else large data sets are capable of, and how dominant forms of data practices might be confronted.

In this article, we argue that such practices constitute an important modality of resistance to dominant modes of living with data, an approach that we call "soft resistance." Soft resistance happens when participants assume multiple roles as project designers, data collectors, and critical sense-makers, rapidly assessing and often changing what data they collect and why in response to idiosyncratically shifting sets of priorities and objectives. Such plasticity fragments data sets and disrupts current algorithmic logics, and thus creates both material and social resistance to traditional modes of data aggregation. QS notions of what is "healthy for me" are too on-the-move, too always emergent, and ultimately too reliant on what is outside computers to be captured and modeled computationally in some totalizing way. QS participants literally, if incompletely, dismantle the categories that make traditional aggregations appear authoritative. We posit this resistance as "soft" as a way to capture both how such resistances are always necessarily partial, firmly rooted in many of the same social logics that shape the categories they seek to escape, and how the rapidly shifting nature of these categories matches the partial mutability of algorithmic categories as used in big data.

Situating Big Data

Academic and public discussions of the ways that we are generating data in unprecedented amounts are plentiful. Like the fictional guitarist Nigel in the 1980s film This Is Spinal Tap who made all of his amps go up to 11 in the belief that 11 made it louder, industry enthusiasm for big data privileges surface size over substance (boyd & Crawford, 2011) or otherwise collapses the distinction between the two (Manovich, 2011). While Manovich sees the collapse of surface and substance as itself a significant turn, in other ways big data is no newer than 11 is louder. Since at least the 17th century, technologies of measurement have been shaped into tools to produce legitimacy and authority. Poovey tells us that in the context of the Enlightenment, it was the fledgling business class who first effectively mobilized the gravitas of scientific rationality to legitimize commerce by creating distance between the measured and the measurer in accounting books (what she calls "modern facts") (Poovey, 1998). These early accounting techniques turned into vast and elaborate tools of state control. Census-taking became a tool to discern people who "count" from those who do not matter at all (Scott, 1998). Noting this history, Dourish and Mainwaring (2012) examined current big data ideologies exemplified in Google's ambition to catalogue, systematize, and "make useful" the world's knowledge and connected them with 19th-century colonial practices that similarly sought to centralize the collection and distribution of knowledge, goods, and power. Their work situates big data in powerful public- and private-sector institutions that manage the actions of populations. This fits squarely into the long history of what statistics have been designed to do.

Big data is not always about big institutions; it is also about subjectivities. Foucault (1997) shows that the practices of measuring populations are entangled with the practices of measuring and disciplining bodies. Indeed, the practices of big data are most visible and dynamic in online advertising and other forms of surveillance encountered at the individual level. Foucauldian critiques of big data are beginning to emerge. Cheney-Lippold, for example, shows how electronically generated data, designed for the management of populations, become internalized in the management of the self (Cheney-Lippold, 2011). Machine learning algorithms, used to parse large data sets, are malleable artifacts capable of adapting to how people enact social categories online. Gender, for example, might manifest itself online in various ways that over time the algorithm learns. The algorithm might change how it discerns between male and female, but it still is ultimately looking to discern a single category—gender. Cheney-Lippold calls this "soft biopolitics," which he observes are no less pervasive, constraining, and manipulative in the way they shape the domain of possibilities available by prescribing which content or advertisements people see. Working outside the Foucauldian tradition, Mackenzie (forthcoming) also shows how machine learning becomes entwined with notions of the self for the people who create algorithms.

Gillespie (2010), Manovich (2012), Pariser (2011), and boyd and Crawford (2011) all rightly complain that analyses of the way that algorithms shape society are frustrated by the inability to access those algorithms. QSers² are also having conversations about how to scrutinize data in conditions in which so few have full access to it. They are developing ways of working around a system where data is largely designed to benefit advertisers first, and device users second. While big data may be big, these

² Quantified Self participants call themselves "QSers" or self-trackers interchangeably.

workarounds demonstrate it is also never total. In this case, data's inherent partiality becomes an important component for putting limits on big data's oversized ambition.

The Quantified Self Movement: A Brief History

The Quantified Self (QS) movement was founded in 2007 by Gary Wolf and Kevin Kelly of *Wired* magazine. Wolf and Kelly felt that the explosion of personal tracking technologies, both software and hardware, opened up new questions about what these devices meant for individuals. In a 2010 TED talk, Wolf describes the expansion of data production and suggests that while we generally think of this data as a "window" onto peoples' activities, the QS movement was founded to ask what it means to think of data "as a mirror" and what kinds of reflection, learning, and personal insights might emerge (Wolf, 2010).

Since its inception, QS has spread internationally to include more than 100 groups in 30 countries with approximately 20,000 participants. Local groups are organized through meetup.com; anyone can start a group, with or without official ties to the central leadership. Over half the participants at gatherings generally are new to the movement, and local groups vary in frequency and number of participants at meetings, from half a dozen or so to several hundred. Unsurprisingly, the largest and best-established groups are centered in large cities with strong technology industries (San Francisco, New York, Toronto, etc.). Despite the loose organizational structure, QS meetups are relatively coherent across sites. This may be the result of new groups being started by people who have already attended a meetup in another city or been to the 500-person international conferences, and who are supported by the extensive resources, discussions, and videos on the organization's website.

The Practice of Self-Tracking

Since 2011, we have been conducting ethnography within the QS movement. This includes keeping anthropological field journals of attendance at monthly meetups and at international conferences. We also joined a smaller day-long workshop of QS leaders, and conducted individual semistructured interviews with 16 Quantified Self members in the United States and Europe. We also included online material from quantifiedself.com as part of our base of ethnographic observation. A key component of ethnography is not merely observation, but participant observation. We explored for ourselves what it takes to find and use the right self-tracking tools and helped co-ordinate and attended "data hack nights." Because we are anthropologists in industry, we also participated in our firm's technical work to design data processing tools for QS communities and have worked to encourage our firm's participation within QS.

When we began this research, we were surprised to learn that this mixing of technical, commercial, community, and personal work indeed is par for the course within the Quantified Self movement. Our own mixed activities were not unique. They meant we had something in common with other community members, who were also simultaneous hobbyists, observers, and commercial actors. They might have a personal project to collect data in order to improve, for example, sleep or mood, and also be a purveyor or builder of tools to do just that. Participants often have some kind of technical or medical educational background, or make Quantified Self tools as academic experiments.

Within QS, the perils of mixed motives are acknowledged and actively managed. Participants recognize their fellow QSers as a potential market, but also generally believe in the merits of both their personal experiments and products. This puts the QS movement in-line with the broader phenomenon within the technology industry of mixing labor with notions of creative worth and pleasure (Neff, 2012; Scholz, 2012). QS manages this mixing in specific ways. QS meetups cohere around short talks about individual, personal experiments in self-quantification. Presenters are asked to talk about "what I did, how I did it, and what I learned." They cannot give straightforward product pitches about the general benefits of this or that tool, but may speak about their products as a personal reflection on their actual experiences with them. This forces not just hobbyists but also industry actors to take an entirely different perspective on data. In QS talks, data is not merely the thing that an amorphous crowd inadvertently gives to a company for free. In QS talks, the "crowd" from which data is commonly sourced is an actual person, in the flesh. For a brief moment, that very same person who might make money from other people's digital traces is asked to confront his or her own data, not as a resource to be abstracted by distant machines and turned into target marketing, but as a meaningful and useful reflection of himself. QS is one of the few places where the question of why data matters is asked in ways that go beyond advertising or controlling the behaviors of others.

Just what does a personal relationship to data look like in QS? Michael, a longtime QSer, cycles through things he tracks—time use, moods, exercise, sleep patterns, work habits, food, weight, and so on—with the aid of an expansive repertoire of technologies, both software and hardware. He is particularly concerned with his morning routine: "If I don't do it, I'm off for the rest of the day." It starts with weighing himself, then doing some pushups, followed by a meditation, and then a writing exercise using a program called 750 Words, in which he writes the first 750 words that come to mind. It acts as a meditative exercise that comes with an analytical bonus: algorithms scan the contents for mood, mindset, and current preoccupations.

It would be easy to see Michael's ritual as a kind of desperate need for control, but his approach is much more subtle. He tracks things when he needs to cultivate a particular habit, or when he is trying to understand what is happening with his body. He is able to have this extensive morning routine in part because he goes to bed much earlier than most people. This is a consequence of his sleep tracking. He uses a Zeo, a sensor worn on the head that indicates sleep cycles, how often you wake up, and so on. Sleep is not a problem for Michael, but it also was not obvious whether it could or should be any different. This ability to see the unseen inspired his new intention of going to bed at 9:00 p.m. That intention, however, needed to be supported in other ways. That might involve tracking when and how much exercise occurs to identify whether late-night exercise keeps him up or helps him go to sleep. On and on it goes through various practices that evolve in relation to data.

Tellingly, the one thing Michael does not keep track of is what he is tracking. Giving up on tracking something is not a failure for him. Often it means the new pattern has now stuck, and he does not need data to see it anymore. The data has moved inside him in a way, transduced (Mackenzie, 2002) into a sensation of having slept well, or into a temporal habit like waking up early. If it has not stuck, he might try again, or try a different kind of data. He looks at data in all its minutiae in order to focus the

mind on the patterns that are happening. He uses a Buddhist framework of mindfulness and awareness to describe the role that data plays in his life. Tracking introduces purposefulness and intention into his everyday actions ("so I don't go on autopilot" he says). For him, data is a technology of noticing, not that different from the Buddhist meditation practices he draws on, which are not just about calming the mind but about taking note of what is going on inside the body.

The 2012 Global Quantified Self Conference was full of these sorts of discourses of mindfulness and awareness as a description of what made self-tracking different from other technical practices. Other QSers told us of the crucial importance of manually entering data, rather than focusing on technologies that can automatically collect it: "This glucose monitor will automatically upload my glucose levels, but I had to go back to doing it manually. When it's all automatic, you aren't really aware of what it is saying." The awareness of what is happening through and with data in the moment is as important a mirror as the post hoc assessment. In situ awareness surfaces threads of other associations-what was eaten, the environment, the associated social dynamics, and so on. This gives a fuller experience of what changes in date, such as rising glucose levels, might physically feel like. One learns how to feel one's body through the data. That can either lead to inspiration for tracking something that might be causing the phenomenon, or the decision to stop tracking it at all. Boesel (2012) recounts an incident in which a woman had been closely tracking her ovulation, which had sensitized her to the physical signs of ovulation. This woman had difficulty getting clinics to acknowledge her practice, yet every time there was a disagreement between her and the clinic about whether she was ovulating, it was her self-knowledge, not the clinic's urine tests, that corresponded with the results of the more sensitive tests. In these ways, most self-trackers in no way cede authority to the supposed objectivity of devices or the quantitative nature of sensor data. Instead, they traverse between what is inside and outside the body. They put things out in the world (software, reminders, routines, and sensors) in order to reflect on, and reorder, what is inside the body (the sensation of energy, mood, or productivity).

In Greenhalgh's (2012) account of American constructs of fatness, scales are cruel technologies for scolding and shaming people. They are used as weapons to deem people "unhealthy" regardless of personal physiology or highly contested medical knowledge on the topic. She shows how, in a deeply medicalized culture, the shift from fatness as an aesthetic problem to fatness as a health problem deepens feeling of unworthiness. To our surprise, we found most QSers do not grip too tightly to normative understandings of what is and isn't "healthy." Many digital technologies for health do, however. Michael largely avoids these, or repurposes them when they are designed in this way. He prefers tracking tools where he can set his own direction, which of course is never his own alone. He takes ideas and frameworks from extensive reading of psychology, technology theorists, political thinkers, and life coaches. He draws a very clear distinction between what might be "good for you" as a general principle and what works for him. There may or may not be a deep attachment to a particular framework for a long period of time. In the words of another QSer, "sometimes people grab on to the frame so hard they break it," meaning that a strong attachment also elicits a discovery of where the frame falls short in practice. If scales are sometimes used in QS to internalize feelings of unworthiness, they are not used this way for very long. QS community talk facilitates and supports people in moving on to the next thing after the frame breaks.

In QS, we find *both* extensive discussion of received wisdom *and* deeply idiosyncratic practices that reflect highly particular notions of well-being. At QS meetings, unusual behavior or appearance is accepted and flourishes. We have seen people standing on one leg while listening to talks, wearing adult pajamas, and adhering to diets not found in any book. Invariably, when one plucks up the courage to ask why, the explanation ends up appearing as if these things are the most sensible thing in the world to do. We take this to be not just sign of QS's alterity, but also the result of a particular, shared practice of interacting with data. QS not only approaches discourses of healthiness with skepticism, but relies on practices of listening to the body, reading data carefully, and devising responses to both signs from the body and signs from the data. If this ends in standing on one leg while listening to a talk, so be it.

Soft Resistance

Is one man's collection of data across a dizzying, yet nonetheless finite number of devices and parameters really "big data"? Certainly some trackers individually approach "bigness" as their data exceeds the capacity of tools such as Excel. For most, though, the individual data is well below that threshold. Nonetheless, QS data is linked to bigness in a number of ways. First, QSers generate data in the aggregate that makes large institutional data collectors salivate. At the 2012 QS conference, representatives of these institutions were in fact dreaming of what could be done with "all this data" if only it could be harvested. Such visions stoked fantasies of the disciplined consumer of health management products, who could also be mined for scientific discoveries and marketing opportunities via crowdsourcing. With most QSers adopting hybrid roles, this mode of talk was intertwined between business and dedicated hobbyists. Second, while the amount of data collected by individual users is limited, an "n = 1," the kinds of data collected reflect the same explosion of measurement that is at the root of big data. The QS movement was sparked by, was enabled by, and is explicitly a response to the proliferating modes of data collection and the expansion of sensors beyond laboratories into relatively affordable, easily obtained consumer devices. In this specific sense, QS practices are entirely inseparable from big data.

QS welcomes big data actors, but its insistence on the centrality of the "n=1" rather than the aggregate or normative means it also puts space between the movement and those actors. Algorithms that generate Michael's sleep report may have the wrong construct of "good" sleep for him, but data that the sensor records might nevertheless be useful to him so he can make his own construct. There may not be a market for Angela's individual data, or the general category of "mood as an indicator of job satisfaction" as Angela constructs it. There is clearly no such market for Charlie's perspective as a function of cardinal directions. Any attempt to aggregate it into something larger effectively makes it something else. In these ways, QS is less a crowd to be sourced and more a multitude of analysts, each with an analytics of n=1.

The insistence on the idiosyncrasy of individual bodies and psyches, and in situ reflection rather than post hoc definition, constitutes an important alternative notion of "analytics." In industry parlance, analytics is the job that algorithms do. They parse large data sets, identify patterns, and infer meaning. Choices about what is worth measuring are embedded in algorithms. Algorithm designers define the range and content of categories, such as gender, activity level, and so on, which can then be used to classify

people on the basis of online behavior and deliver advertising or content accordingly. As Cheney-Lippold (2011) observes, to the extent algorithms learn, they change what patterns constitute "manliness" or whether the person measured is classed as a "man," but they do not change the fact that they are looking to distinguish men from women. Building on Cheney-Lippold's notion of soft biopolitics, we argue that the QS movement is best understood as a kind of soft resistance. Both QS practices and big data algorithms share Cheney-Lippold's sense of softness—a readiness to evolve what constitutes meaning as it unfolds. However, the algorithms that QSers face often have a much harder edge than the constructs of gender at stake in search engines. The mobile health industry is much less prepared to soften notions of what practices constitute "healthiness" and is more focused on how to cajole people into conforming to standards. Big data enthusiasts come to the QS world in search of access to data that could indicate "healthiness" as indexed by relatively stable measurements, controlled and vetted by medical practice. But OS practices simply do not cohere in this way. Healthy practice for Charlie is completely different from that for Michael and Angela, not just in terms of what they think or believe, but at a data level. The difference cannot be thought of as a standard deviation from a norm; rather, they are not on the same curve. Their differences are embodied in diverging practices that cannot be meaningfully assembled together using the categories in current circulation. In fact, attempts to elicit participation in coordinated studies within QS have rarely succeeded because people have such wildly different ideas about what constitutes an interesting measurement.

By making themselves into people who do not fit the category, QSers appropriate big data's attention to granular patterns, but resist the categories that are built into devices and into the market for data. Participants might use this or that construct of health as a starting point, but the category mutates more quickly for people than for the algorithm—for example, from the presence of full REM cycles into a bedtime routine into a meditation practice. Those categories might never be directly modeled by the algorithms that have informed them. QS participants use the constant unfolding of meaning to critically question what constitutes relevant information, whether individual data points or entire categories of knowledge. In these ways, QS resists through its softness.

Self-trackers are making a lateral move, working beyond but also alongside received categories. They also conduct soft resistance by working beyond, but alongside, automation. Amid deep enthusiasm for the automatic collection of data, we find people making clear decisions about when automation serves as a helpful externalization of the self, and when automation circumvents important internalizations. Claims that "when it's all automatic, you aren't really aware of what it is saying" speak to two senses of "resistance." In one sense, it is a rejection of the industry assumption that automation is always better. In another sense (one that a self-tracker pointed out to us), resistance also speaks to the body's ability to provide "resistance" analogous to what resistors do in electronics. Bodies, like resistors, slow things down in order to turn them into something else. It requires physical gestures, attention, and, above all, repetition to transduce data from glucose tests or ovulation tests into a bodily sensation. "Resistance" in this second sense is not just a way of rejecting what others would have them do, but a productive way of creating an alternative mode of working with data.

The value placed on evolving one's tracking practices frustrates would-be big data collectors. Creating an aggregate coherence from fragments of three-week tracking stints across multiple devices is

far more difficult to do than from steadily collected longitudinal baselines. How is a big data company to know what a person is experiencing at that moment of manual data entry? Indeed, employees of established medical institutions often complain that QS is "not scientific enough" for this reason. In our view, the analytics Michael performs is not an absence of rigor but an appropriation of, and resistance to, the emergent norms of the big data business. On one hand, there is a separation between self and data in Michael's practice that resembles the processes that feed algorithmic analyses. In both the inner workings of algorithms and in Michael's self-tracking, measuring creates distance through which data gains an aura of objectivity: It becomes "fact" in Poovey's sense. As with the soft biopolitics of algorithms, these facts are used to limit possible outcomes. On the other hand, people like Michael collapse measurer and measured in an analytical hermeneutics not captured in Foucauldian understandings of the disciplined body, where internalized normative standards are determined top-down. In QS, the self is made subject in the double sense of the word (as both "subject of" and as "subject to"), through self-objectification, but this self-objectification lays claim to more far reaching sovereignty than Foucault's model allows. Indeed, Charlie mentioned to us after his talk that "of course, all I'm really doing here is collapsing subject and object" as if that were the most ordinary thing in the world to do. This multivalent approach to data, at once agentive and committed to "modern facts," keeps tropes of scientific inquiry in play while few participants actually care about creating wider legitimacy for claims about their body. Most participants know that their practices will not be seen as authoritative best practice. This is hardly a loss if what is right "for me" is what matters. Self-trackers are making a disciplined body, but one that is idiosyncratically so. When people like Michael pick up and put down different tracking procedures, they gain more agency as sense-maker than the algorithm or the would-be big data collectors.

Conclusion

"Softness" in soft resistance is not ineffectiveness but a powerful mutability capable of calling into question who gets to do the aggregation and how. In Cheney-Lippold's description of algorithmic identity, categories remained stable while the online practices that constituted them did not, but here, categories, the totalizing coherence of data sets, and commitments to automation are softened as self-trackers assert greater control over what their data ultimately means. Here, what was a problem for big data companies—the difficulty of making meaning out of "all this data"—became a solution for those looking to resist being defined and governed exclusively by frameworks set by large or commercial institutions. This solution made use of those same dominant forms while making data aggregation across devices and time periods more difficult to conduct.

We have suggested too that the "resistance" in soft resistance is not just rejection but has its own productive potential. Traversing inside and outside both individual bodies and institutional arrangements makes numerical data productive in new ways. Self-trackers have a relationship to data as something that lies both inside and outside individual bodies, and inside and outside expert categories of "health." The movement as a whole also lies both inside and outside a wider political economy of data. People like Michael sit in the same room with people hoping that QS data could just go up to 11 (as it were), as if all data could equally fuse together in a gigantic pot. This configures how more direct political challenges take place. As a gathering of influential lead users, QS is a context in which companies must respond to vocal complaints about the ways that closed algorithms produce closed categories. Some in QS

argue that companies should give open access to the data collected by device sensors but not their algorithms per se, to allow alternative interpretations to flourish. Indeed, at the time of writing, a new cohort of startup firms have emerged to do just that.

QS politics are not defiant toward the dominance of big data—they are instead in dialogue with it and reliant on it. This means, of course, that the movement does not escape the wider biopolitics of late capitalism that rely on radical individualism to drive consumption as a dominant mode of expression and to elide structural inequalities by framing all actions in terms of personal "choice." A preoccupation with the self can be made to do many things, however, and there is a vast difference between being situated in, and adapting to, certain cultural realities and uncritically reproducing them. Nevertheless, the question of where soft resistance meets its limitations remains, as does the question of what other alternatives would look like in cultural contexts that did not privilege the self. QS also does not escape the constructs of healthiness embodied in the devices that they use, inasmuch as those are the dominant constructs with which participants must wrestle. But wrestle they do. Unlike Gillespie's YouTube users, who are unwittingly shuttled around to this or that content and are largely prevented from seeing the choices being made for them, QSers use their bodies and the cultural resources around them to see outside the frame that devices set for them. They interact with algorithms not as blind, mindless dupes, but as active participants in a dialogue that moves between data as an externalization of self and internal, subjective, qualitative understandings of what the data means.

In this intentionally short ethnography, we made the choice to sketch what soft resistance looks like in one context. This lays the groundwork for a number of theoretical interventions in the current discussion of algorithmic living that future work or others could make. Perhaps more important, it suggests the possibility that yet more alternatives are possible, some more radical and some less so, beyond what we have documented here. The Quantified Self is but one response to the logics and cultures of big data, but it is one that tells us that data's contingencies, uncertainties, and proliferations can be a powerful resource.

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